TITLE: **Retentate chromatography** and protein chip arrays with applications in biology and medicine

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AB This invention provides methods of **retentate** chromatog. for resolving analytes in a sample. The methods involve adsorbing the analytes to a substrate under a plurality of different selectively conditions, and detecting the analytes retained on the substrate by desorption spectrometry. The methods are useful in biol. and medicine, including clin. diagnostics and drug discovery.

REFERENCE COUNT: 9

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L2 ANSWER 6 OF 21 CA COPYRIGHT 2000 ACS

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TITLE: Rapid methods for screening low molecular mass compounds non-covalently bound to proteins using size exclusion and mass spectrometry applied to inhibitors of human cytomegalovirus protease

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AB General and rapid methods were developed for detg. the extent of non-covalent binding between small mols. and proteins, using the model system of human cytomegalovirus protease and several drug candidates which inhibit the protease by non-covalently binding to it. The assay was performed by off-line coupling of size-exclusion methods with mass

of Cys114, are target sites for GSTCBQ. Although only ones GSTCBQ mol. per active site was detected, it appears to be distributed among all three target sites. In addn. MALDI MS peptide mapping covered 81% of the cDNA deduced amino acid sequence for GSH transferase and site-directed mutagenesis corresponding to a single amino acid substitution were verified.

L9 ANSWER 18 OF 76 CA COPYRIGHT 2001 ACS

AB Dipteryx alata trypsin **inhibitor** (DATI) has been purified and completely sequenced. It showed homol. to members of the Bowman-Birk family of **inhibitors**. The last step of DATI purifn. by RP-HPLC (narrow-bore C18 column) suggested the existence of some isoforms of the **inhibitor** due to the presence of a cluster of very close peaks in the chromatogram. By using electrospray **ionization mass spectrometry** (ESIMS) and laser **desorption mass spectrometry** (LDIMS), the identification of DATI isoforms was made possible. From the ESIMS data, the following mol. masses were found: 6803.22 for isoform .alpha.; 6809.94 for b; 6977.58 for c; 7065.07 for d; 7151.42 for e; and 7291.70 for f. Similar masses were found when using LDIMS. Isoform b was the most abundant and its mol. **mass** matched the mol. **mass** of 6893 calcd. from the sequence of DATI. The **mass** differences between .alpha. and b, b and c, c and d, and d and e are equal to 87, which corresponds to Ser. Isoform a might not have the N-terminal Ser present in isoform b, while the other addnl. Ser residues might comprise a row localized in the C-or N-terminal. The appearance of all these isoforms could result from postranslational N- and C-terminal processing.

L9 ANSWER 19 OF 76 CA COPYRIGHT 2001 ACS

AB IMP dehydrogenase (IMPDH) is the rate-limiting enzyme in de novo guanine nucleotide biosynthesis. IMPDH converts IMP to xanthosine 5'-monophosphate (XMP) with concomitant conversion of NAD+ to NADH. The antiviral agent 5-ethynyl-1-.beta.-D-ribofuranosylimidazole-4-carboxamide (EICAR) is believed to **inhibit** IMPDH by forming an active metabolite, the 5'-monophosphate EICARMP. The expts. reported here demonstrate that EICARMP irreversibly inactivates both human type II and Escherichia coli IMPDH. IMPDH is protected from EICARMP inactivation by IMP, but not by NAD+. Further, denaturation/renaturation of the EICARMP-inactivated enzyme did not restore enzyme activity, which indicates that EICARMP forms a covalent adduct with IMPDH. EICARMP was successfully used to titrate the active sites of IMPDH; these expts. demonstrate that four active sites are present in an IMPDH tetramer. Matrix-assisted laser **desorption ionization** time-of-flight (MALDI-TOF) **mass spectrometry** of native E. coli IMPDH established that protein translation initiates at the third ATG of the DNA sequence. Thus, the E. coli IMPDH monomer is only 488 amino acids long and contains five instead of six cysteines. In addn., MALDI-TOF **mass spectrometry** showed that EICARMP is covalently bound to Cys-305 (Cys-331 in human type II IMPDH numbering), suggesting that Cys-305 functions as a nucleophile in the IMPDH reaction. The inactivation of the E. coli enzyme is a single-step reaction with kon = 1.94.times.104 M-1 s-1. In contrast, the inactivation of human type II IMPDH involves a two-step mechanism where Ki = 16 .mu.M, k2 = 2.7.times.10-2 s-1 and kon = 1.7.times.103 M-1 s-1. These results demonstrate that significant differences exist between bacterial and human IMPDH and suggest that this enzyme may be a target for antibiotic drugs.

L9 ANSWER 20 OF 76 CA COPYRIGHT 2001 ACS

AB Kinetic parameters for the inactivation of the 6-phospho-.beta.-galactosidase (6PG) of Staphylococcus aureus by a series (fluoro, chloro, bromo) of 2,4-dinitrophenyl-2-deoxy-2-halogeno-galactoside-6-phosphates

were detd. These **inhibitors** function by the formation of a stabilized glycosyl-enzyme intermediate. Inactivation and reactivation studies indicate that the fluoro deriv. is formed most rapidly, but is also hydrolyzed fastest. The chloro deriv. forms the most stable covalent intermediate. HPLC profiles of V8-protease digestion of native and **inhibited** protein show significant differences, whereas the **inhibited** 6PG and a point mutant of 6PG (E375Q) yield the same proteolytic fragments. The suggestion that E375 is derivatized is strengthened by matrix-assisted laser-**desorption ionization mass spectrometry** expts. which show that the 22 peptides, residues 336-375 and 376-383, are not produced, due to the absence of the expected cleavage at residues 375 and 376. The reason for the altered proteolysis pattern of the **inhibited** protein is blocking of the resp. V8 cleavage site due to the chem. reaction of the **inhibitor** at position 375. Specific modification of the glycosyl bond between the **inhibitor** and E375 by aminolysis with benzylamine generated a glutamic-acid-5-benzylamide complex at that position in the peptide. The Edman deriv. of the modified E375 appears to be stable and was isolated by Edman degrdn. of trypsin-digested V8-peptide. It was shown to be identical to an authentic, synthetic sample. E375 is the active-site nucleophile of 6PG, corresponding with previous findings for enzymes in this family.

L9 ANSWER 21 OF 76 CA COPYRIGHT 2001 ACS

AB Matrix-assisted laser **desorption/ionization** (MALDI) was used for several small proteins (such as insulin) and for peptides. The detection efficiencies of MALDI for the insulin B chain and the insulin A chain are drastically different. Similar phenomena were also obsd. for various types of peptides. The pos.-**ion** signal of MALDI in detecting proteins or peptides was greatly enhanced by the presence of a basic amino acid in their chains. The exptl. results indicate that this enhancement may arise from proton transfer in soln. by an acid-base reaction between the protein/peptide and matrix mol. This pre-protonated mechanism provides a low energy barrier for the **ionization** of peptides in a MALDI process and greatly reduces the energy threshold of MALDI. Matrix effects on the **ionization** mechanism are discussed.

L9 ANSWER 22 OF 76 CA COPYRIGHT 2001 ACS

AB Dynorphin B (Dyn B-13, also known as rimorphin) is generated from Dyn B-29 (leumorphin) by the cleavage at a single Arg residue. An enzymic activity capable of processing at this monobasic site has been previously reported in neurosecretory vesicles of the bovine pituitary and pituitary-derived cell lines. This enzyme termed "the dynorphin-converting enzyme" (DCE) has been purified to apparent homogeneity from the neurophobic chromatog. on phenyl-Sepharose, preparative isoelectrofocusing in a granulated gel between pH 4 to 6.5, and non-denaturing electrophoresis on 5% polyacrylamide gel. DCE exhibits a pI of about 5.1 and a mol. **mass** of about 54 kDa under reducing conditions. DCE is a metallopeptidase and exhibits a neutral pH optimum. Specific **Inhibitors** of sol. metallopeptidases such as enkephalinase (EC 3.4.24.11) or enkephalin generating neutral endopeptidase (EC 3.4.24.15) do not **inhibit** DCE activity indicating that DCE is distinct from these two enzymes. Cleavage site detn. with matrix-assisted laser **desorption ionization** time of flight (MALDITOF) **mass spectrometry** shows that DCE cleaves the Dyn B-29 N terminus to the Arg14 generating DynB-13 and Dyn B-(14-29). Among other peptides derived from Dyn B-29, DCE cleaves only those peptides that fit the predicted "consensus motif" for monobasic processing. These data are consistent with a broader role for the dynorphin converting enzyme in the biosynthesis of many peptide hormones and neuropeptides by processing at

monobasic sites.

L9 ANSWER 23 OF 76 CA COPYRIGHT 2001 ACS
AB The extracellular pectate lyase (EC 4.2.2.2) of a nonsporulating Amycolata sp. was purified to homogeneity by anion- and cation-exchange chromatogs. followed by hydrophobic interaction chromatog. The enzyme cleaved polygalacturonate but not highly esterified pectin in a random endolytic transeliminative mechanism that led to the formation of a wide range of 4,5-unsatd. oligogalacturonates. As shown by high-performance anion-exchange chromatog. and pulsed amperometric detection, these unsatd. oligogalacturonates were further depolymd. by the enzyme to the unsatd. dimer and trimer as final products. The pectate lyase had a mol. wt. of 31,000 detd. by SDS-PAGE and a mol. **mass** of 30,000 Da detd. by matrix-assisted laser **desorption ionization** **mass spectrometry**. The isoelec. point of the protein was 10. Max. activity occurred at pH 10.25. Calcium was essential for activity, and EDTA inactivated the enzyme under std. assay conditions. Interestingly, EDTA did not **inhibit** the ability of the enzyme to cleave the native pectin (protopectin) of ramie (Boehmeria nivea) fibers. The Km value with sodium polygalacturonate as the substrate was 0.019 g liter-1. The purified enzyme lost its activity after a 1-h incubation at 50.degree. but was stabilized by calcium or polygalacturonate. The N-terminal sequence showed high similarity within a stretch of 13 amino acids to the N-terminal sequences of pectate lyases PLa and PLe from Erwinia chrysanthemi. The Amycolata sp. did not produce addnl. isoenzymes of pectate lyase but produced further activities of pectinesterase, xylanase, and carboxymethyl cellulase when grown in a medium with decorticated bast fibers from ramie as the sole carbon source.

L9 ANSWER 24 OF 76 CA COPYRIGHT 2001 ACS
AB Com. chicken ovomucoid (OMCHI) and OMCHI isolated by pptn. of egg whites with org. solvents, both of which were crude products, were fractionated by anion- and cation-exchange chromatog. The obtained four fractions were characterized by reversed-phase chromatog., N-terminal sequencing, matrix-assisted laser **desorption ionization** time-of-flight (MALDI-TOF) **mass spectrometry**, detn. of sugar contents, and trypsin-**inhibitory** activities. Three fractions were OMCHI variants differing in carbohydrate compn., esp. in sialic acid content, and the other fraction was tentatively termed ovoglycoprotein (OGCHI). The OMCHI and OGCHI are different in physicochem. and biochem. properties: av. mol. wt., 26,000-27,700 for OMCHI variants and 29,700 for OGCHI; N-terminal amino acid, Ala for OMCHI and Thr for OGCHI; and trypsin-**inhibitory** activity, pos. for OMCHI and neg. for OGCHI. These OMCHI variants and OGCHI were bound to aminopropyl silica gels to evaluate chiral recognition ability. OMCHI is reported to have chiral recognition ability (Miwa, T. et al., 1987). However, neither OMCHI variant had appreciable chiral recognition ability, while the OGCHI had excellent chiral recognition properties as compared to those of the OMCHI reported previously. This reveals that the chiral recognition ability of the OMCHI reported previously comes from the OGCHI, which is present in crude OMCHI as an impurity. Studies were done on the chiral resoln. of, e.g., benzoin, chlorpheniramine, and ketoprofen.

L9 ANSWER 25 OF 76 CA COPYRIGHT 2001 ACS
AB The authors are currently developing strategies to synthesize bisubstrate analogs as potential **inhibitors** of serine and tyrosine protein kinases; several such analogs have been synthesized. The initial target proteins were the cAMP dependent protein kinase (cAPK) and the

Ca+2/calmodulin dependent protein kinase (CaM kinase II). These bisubstrate analogs were based on either known peptide substrates such as kemptide, a seven amino acid peptide substrate of cAPK, or on **inhibitory** peptides such as a seventeen amino acid peptide encompassing the autoinhibitory domain of CaM kinase II. Peptides contg. a single phosphoserine group were first synthesized and then AMP, ADP, or ATP was coupled through the serine phosphate with prior activation by 1,1-carbonyldiimidazole using either a soln. or solid phase reaction scheme. In this current study, the authors report the characterization of the bisubstrate analogs by liq. secondary **ionization** **mass spectrometry** (LSIMS), matrix-assisted laser **desorption mass spectrometry** (MALDI), and tandem **mass spectrometry** (MS/MS). In the pos.-**ion** mode, the LSIMS spectra of the bisubstrate analogs yielded a series of mol. **ions** contg. mono-, di-, and trivalent cation adducts. Cation adducts were absent in the neg.-**ion** mode where the dominant species were deprotonated mol. **ions**, [M - H]-, making this latter technique more useful for confirming product identity and assessing purity. Anal. of these compds. by MALDI in both the pos.- and neg.-**ion** modes yielded mol. **ions** which also contained metal **ion** adducts, although they were limited primarily to Fe+2 adducts. Unlike LSIMS, the MALDI spectra showed no evidence for the elimination of the phosphoadenosine or other structural moieties. When these compds. were subjected to high energy collision-induced dissocn. (CID), the dominant fragmentation pathways under pos.-**ion** MS/MS conditions resulted from cleavage of the phosphate linkages to the adenosine moiety with charge retention on the peptide, although a major peak for 5'-deoxyadenosine was also seen at m/z 250. Charge retention in the neg.-**ion** mode was most pronounced for **ion** fragments contg. the highly acidic phosphate moieties and yielded phosphoadenosine related **ions**, for example, (AMP-H)-, (AMP-H-H2O)-, (ADP-H)-, etc., as well as **ions** originating from the phosphate linker such as PO-3, H2PO-4, HP2O-6, H3P2O-7, and H2P3O-9. The largest phosphoadenosine **ion** in the neg.-**ion** CID spectra for each bisubstrate analog, for example, m/z 426 (ADP-H)-, m/z 506 (ATP-H)-, or m/z 586 (AP4-H)-, indicated that the desired covalent modification had been formed between the phosphoserine and APn moieties.

L9 ANSWER 26 OF 76 CA COPYRIGHT 2001 ACS

AB Matrix-assisted laser **desorption/ionization** **mass spectrometry** (MALDI MS) and capillary zone electrophoresis (CZE) were evaluated for monitoring protein phosphatase and kinase reactions in vitro. Varying concns. of peptide C (YIHLEKKYVRRDSG), peptide S (YLIEDNEYTARQGA) and kemptide (LRRSALG) mixed with their corresponding phosphorylated peptides, pC, pS and pkemptide, were analyzed. Comparison between the two techniques indicated that MALDI MS was less quant. than CZE, showing a bias towards detection of the unphosphorylated peptide S and kemptide. In terms of sensitivity, the MALDI MS and CZE techniques are comparable. Protein kinase A phosphorylation of kemptide was monitored with both MALDI MS and CZE, whereas alk. phosphatase dephosphorylation of pC could only be monitored with MALDI MS. The absence of **inhibition** with phosphatase or kinase buffers is a significant advantage of MALDI MS. In contrast to CZE, the MALDI spectra allow identification of the species analyzed by virtue of their **mass**. The results obtained emphasize the advantage of monitoring enzymic reactions in buffer solns. using MALDI MS compared with CZE.

L9 ANSWER 27 OF 76 CA COPYRIGHT 2001 ACS

AB The structure, glycosylation pattern ans surface topol. of protease interaction of human .alpha.1-protease **inhibitor** are examd. by using **desorption-ionization mass**

spectrometry.

L9 ANSWER 28 OF 76 CA COPYRIGHT 2001 ACS
AB Temp. programmed static secondary **ion mass spectrometry** (TPSSIMS) and temp. programmed **desorption** (TPD) have been used to study the kinetics of adsorption, dissocn., and **desorption** of NO on Rh(111). At 100 K, NO adsorption is mol. and proceeds via mobile precursor state kinetics with a high initial sticking probability. SSIMS indicates the presence of two distinct NO adsorption states, indicative of threefold adsorption at low coverage, and occupation of bridge sites at higher coverages. Three characteristic coverage regimes appear with respect to NO dissocn. At low coverages .theta.NO < 0.25 ML(monolayer), NO dissocs. completely at temps. between 275 and 340 K. If we neglect lateral interactions and assume pure first order dissocn. kinetics, we find effective values for the activation barrier and preexponential factor and activation energy are .apprx.1011 s-1 and 65 kJ/mol, in better agreement with transition state theory expectations. The Nads and Oads dissocn. products **desorb** as N2 and O2, resp., with **desorption** parameters Edes = 118 .+-. 10 kJ/mol and .nu.des = 1010.1.+-.1.0 s-1 for N2 in the zero coverage limit. At higher coverages, the **desorption** kinetics of N2 is strongly influenced by the presence of coadsorbed oxygen. In the medium coverage range 0.25 < .theta.NO < 0.50 ML, part of the NO **desorbs** mol., with an estd. **desorption** barrier 113 .+-. 10 kJ/mol and a preexponential of 1013.5.+-.1.0 s-1. Dissocn. of NO becomes progressively **inhibited** due to site blocking, the onset shifting from 275 K at 0.25 ML to 400 K, coinciding with the NO **desorption** temp., at a coverage of 0.50 ML. The accumulation of nitrogen and oxygen atoms on the highly covered surface causes a destabilization of the nitrogen atoms, which results in an addnl. low-temp. **desorption** state for N2. For high initial NO coverages above 0.50 ML, the dissocn. is completely self-**inhibited**, indicating that all sites required for dissocn. are blocked. The **desorption** of the more weakly bound- presumably bridged- NO does not generate the sites required for dissocn.; these become only available after the **desorption** of- presumably triply coordinated- NO.

L9 ANSWER 29 OF 76 CA COPYRIGHT 2001 ACS
AB The mode of inactivation of glutathione S-transferase isoenzyme 3-3 from rat by the active site-directed **inhibitor** 12-(S-glutathionyl)-3,5,6-trichloro-1,4-benzoquinone (GSTCBQ) has been investigated by a combination of site-specific mutagenesis and **mass spectrometric** anal. of the sites of reaction of the reagent with the enzyme. This very reactive reagent is shown to target 3 residues in or near the active site, including the hydroxyl groups of Tyr-6 and Tyr-115 and the sulfhydryl group of Cys-114. Although the covalent attachment of one 2-(S-glutathionyl)dichloro-1,4-benzoquinonyl group/active site is sufficient to inactivate the enzyme (<5% residual activity), the 1 mol of reagent appears to be distributed among all three target sites. Mutant enzymes in which the reactive functional groups of these 3 residues have been individually removed remain susceptible to GSTCBQ. Evidence from amino acid sequencing and peptide maps visualized by matrix-assisted laser **desorption/ionization mass spectrometry** suggests that both Tyr-6 and Tyr-115 are primary targets of the reagent in the native enzyme. Docking of a model of GSTCBQ in a model of the active site derived from the crystal structure of the enzyme indicates that the trichlorobenzoquinonyl group can be positioned so that both tyrosine hydroxyl groups can act as nucleophiles to add to the reagent or alternatively act as electrophiles to assist in the nucleophilic addn. of the other. The reaction of GSTCBQ with Cys-114 appears to require a conformation different from that in the crystal structure.

L9 ANSWER 30 OF 76 CA COPYRIGHT 2001 ACS
AB 2'-O-[(R)-formyl(adenin-9-yl)-methyl]-(S)-glyceraldehyde 3'-triphosphate (also designated as ATP dialdehyde or ATPDA) was utilized as an affinity label for the 3'-phosphoadenosine 5'-phosphosulfate (PAPS) binding site of an aryl sulfotransferase. The sulfotransferase employed in these studies was rat hepatic aryl sulfotransferase (AST) IV (also known as tyrosine-ester sulfotransferase, EC 2.8.2.9), for which a cDNA had been previously cloned and expressed in Escherichia coli and the resulting enzyme purified to homogeneity. ATPDA was a time-dependent irreversible **inhibitor** of the recombinant AST IV, and this **inhibition** was prevented by including either PAPS or adenosine 3',5'-diphosphate (PAP) in the incubation of AST IV with ATPDA. Expts. relating covalent binding of [2,8-3H]ATPDA with catalytic activity indicated that 1 nmol of the affinity label was bound per nmol of AST IV subunit. Incubation of [2,8-3H]ATPDA with the enzyme followed by redn. with sodium cyanoborohydride, proteolysis with trypsin, and sepn. of the resulting peptides by high pressure liq. chromatog. yielded two labeled peptide fractions. Automated sequence anal. showed that both modified peptide fractions were derived from the same sequence in AST IV: 63-Leu-Glu-Lys-Cys-Gly-Arg-68. Both the sequencing results and examn. of the two peptide fractions by matrix-assisted laser **desorption ionization mass spectrometry** indicated that the ATPDA affinity label was bound to the hexapeptide at both lysine 65 and cysteine 66. These affinity labeled amino acids are located within a region of sequence in AST IV that shows considerable homol. with various sulfotransferases that possess diverse specificities for acceptor substrates, and this may provide insight into PAPS binding in other sulfotransferases.

L9 ANSWER 31 OF 76 CA COPYRIGHT 2001 ACS
AB Using soft-**ionization mass spectrometry** (252-Cf particle **desorption mass spectrometry**, PDMS) a minor-adduct of anticancer drug prospidine and deoxyguanosine-5'-phosphate (pdG) has been found. It has been shown exptl. that PDMS is very useful for study of biol. mixts. as well as mechanisms of interactions between drugs and biomols.

L9 ANSWER 32 OF 76 CA COPYRIGHT 2001 ACS
AB The interaction of 1-propanamine (1-PA) with H-MFI zeolite and its Ga, In, and Cu modifications, prepd. by solid state **ion** exchange, has been studied by thermal anal., high resoln. gas chromatog., **mass spectrometry**, and catalytic reactor expts. Two completely different **desorption** features have been obsd. when the H-MFI sample is first equilibrated with 1-PA at 323 and 593 K and then heated to 823 K. These **desorption** features have been ascribed to the decompn. of propylammonium and dipropylammonium **ions** adsorbed at the proton sites of the zeolite. Catalytic expts. confirmed dipropylamine as the major product of 1-PA conversion at 593 K over an H-MFI catalyst. In contrast, a radical change in the interaction of 1-PA with the zeolite has been obsd. as a result of the replacement of the protons in MFI with Ga, In, or Cu cations. More than one 1-PA mol. can be coordinated to a cation even at relatively high temps., facilitating both bimol. transalkylation and dehydrogenation processes. The **desorption** features of 1-PA with cation contg. MFI differ generally from those of pure H-MFI zeolite. NH3 product is **desorbed** at temps. as much as 160 K below that of H-MFI. Nitriles, C2-C6 hydrocarbons, and some aroms. appear in appreciable amts. in the decompn. products. Gas-phase hydrogen **inhibits** the dehydrogenation processes and prevents the formation of a residue. Catalytic expts. in a gradientless batch recirculating reactor have revealed that different dehydrogenation

reactions predominate depending on the nature of the zeolite cation. While a C6-imine appears as a major product of the reaction of 1-PA over In-MFI, more dehydrogenated N-contg. compds. such as propionitrile and a C6-nitrile predominate over Ga-MFI and Cu-MFI, resp. These differences can be interpreted in terms of the differing Lewis acid strengths and reducibilities of the Ga, In, and Cu cations.

L9 ANSWER 33 OF 76 CA COPYRIGHT 2001 ACS

AB The interaction between the **inhibitory** subunit (P.gamma.) and catalytic subunits of cGMP phosphodiesterase (I) is essential for the regulation of I in vertebrate rod photoreceptors. Subunit P.gamma. phosphorylation in vitro was studied using a kinase which was extd. from amphibian rod outer segments. Various chromatogs. of the kinase prepn. using **ionic** exchange, gel filtration, and heparin-Sepharose columns indicated that a kinase with a mol. wt. of 70,000 was responsible for subunit P.gamma. phosphorylation. The kinase did not require any of the known activators for protein kinase but was **inhibited** by cGMP in a concn.-dependent manner. Together with anal. by laser-**desorption mass spectrometry**, measurement of 32P radioactivity in phosphorylated P.gamma. indicated that P.gamma. extd. with GTP-bound transducin .alpha. subunit was not phosphorylated and that a phosphate was incorporated into >80% of subunit P.gamma. by the kinase. Phosphoamino acid anal., sequencing of phosphorylated peptides derived from phosphorylated P.gamma., and phosphorylation of synthetic peptides indicated that Thr-22 in P.gamma. was phosphorylated by the kinase. Phosphorylated P.gamma. had a higher **inhibitory** activity for active I than nonphosphorylated P.gamma.. These data suggest that Thr-22 in P.gamma. is phosphorylated by a specific kinase and that subunit P.gamma. phosphorylation governs the interaction between P.gamma. and catalytic subunits of I in vertebrate rod photoreceptors.

L9 ANSWER 34 OF 76 CA COPYRIGHT 2001 ACS

AB 2-Ethynylnaphthalene (2EN) is a mechanism-based inactivator of rat cytochrome P 450 (P 450) 2B1 with 1.3 mol of adduct bound per mol of P 450 inactivated [Roberts, E. S., Hopkins, N. E., Alworth, W. L., & Hollenberg, P. F. (1993) Chem. Res. Toxicol. 6, 470-479]. Further studies have shown that 2EN is also an efficient mechanism-based inactivator of the 7-ethoxycoumarin O-deethylase activity of rabbit P 450 2B4 with 0.83 mol of adduct bound per mol of P 450. Cleavage of [3H]2EN-inactivated 2B1 with cyanogen bromide, sepn. of the peptides by HPLC, and further purifn. of the radiolabeled fraction by Tricine-sodium dodecyl sulfate-polyacrylamide gel electrophoresis (SDS-PAGE) led to the identification by autoradiog. of a radiolabeled peptide (Mr .apprxeq.3000). Amino acid sequence anal. of the first 12 N-terminal residues revealed the sequence ISLLSLFFAGTE corresponding to positions 290-301 in the protein. When the radiolabeled fraction from the HPLC sepn. was analyzed by matrix-assisted laser **desorption ionization mass spectrometry** (MALDI-MS), peaks at m/z 2722.5 and 2890.6 were detected. The lower **mass** peak corresponds to the mol. **ion** (av. **mass**) of the cyanogen bromide peptide Ile290 to Met314 (theor. 2722.2), while the higher **mass** peak corresponds to the same peptide with a bound 2-naphthylacetyl group (theor. 2890.4). When [3H]2EN-inactivated 2B4 was treated with cyanogen bromide, the peptides were sepd. by HPLC, and the fractions were analyzed by Tricine-SDS-PAGE, two radiolabeled peptides (Mr .apprxeq.5000 and 8000) were identified by autoradiog. Amino acid sequence anal. of the first 11 residues revealed identical N-termini with the sequence EKDKSDPSSEF corresponding to positions 273-283. When the fraction contg. these peptides was analyzed by MALDI-MS, peaks at m/z 4730.4 and 4897.6 were detected. The lower **mass** peak represents the MH+ for the peptide Glu273 to Met314 (theor. 4729.3), while the higher

mass peak corresponds to the MH+ of the modified peptide (theor. 4897.5). Two addnl. peaks were identified from this fraction at m/z 8603.7 and 8435.6 which could be explained by the presence of a microheterogeneous form of 2B4 with Met314 replaced by Leu. Again, the difference in **mass** between the two peaks (approx. 168) would correspond to the addn. of a 2-naphthylacetyl group to the unmodified peptide. These results support the concept that 2EN **inhibition** occurs via covalent modification of the cytochrome protein moiety by the reactive ketene.

L9 ANSWER 35 OF 76 CA COPYRIGHT 2001 ACS

AB This paper describes several protocols for growing large, protein-doped 3,5-dimethoxy-4-hydroxy-trans-cinnamic acid crystals. Examn. of these crystals using laser **desorption** shows that the **mass** spectra obtained from the crystals can be useful for biochem. anal. One particular crystal growing protocol allowed a non-covalently bound heme group of horse muscle myoglobin to remain attached to the polypeptide following laser ablation and **ionization**. Crystals could be grown in solns. that contained involatile solvents that normally **inhibit** polypeptide **ion** prodn., such as glycerol. These crystals were protein doped and produced acceptable anal. **mass** spectra. The results suggest that some problems assocd. with the frequently used droplet-drying method of sample prepn. are caused by the changing concn. conditions present in drying solns.

L9 ANSWER 36 OF 76 CA COPYRIGHT 2001 ACS

AB Parabiosis and cross-circulation expts. with spontaneously hypertensive and normotensive rats gave indications for a previously unidentified circulating hypertensive agent. In this study, plasma from normotensive and hypertensive rats was fractionated and the vasopressor action of the corresponding fractions was measured in the isolated perfused rat kidney. One of three vasoactive fractions obtained by gel filtration (Biol-Gel P2) from hypertensive rats showed a higher activity (increase in perfusion pressure by 1502.9 .+-. 438.9 Pa) than that from normotensive rats (increase in perfusion pressure by 505.4 .+-. 186.2 Pa, P<0.01). Further chromatog. sepns. of this fraction revealed that the hypertensive factor is hydrophilic and has no **ionic** groups or vicinal diol groups. The mol. **mass** was estd. by dialysis and the matrix-assisted laser **desorption/ionization mass spectrometry** to be in the range of 1 kDa. The vasopressor is heat resistant and not degradable with trypsin or carboxypeptidase Y. The vasopressor action was not **inhibited** with the angiotensin-II-receptor antagonist saralasin, the .alpha.-receptor antagonist phentolamine, the thromboxane-receptor antagonist carbocyclic thromboxane A2 or the serotonin antagonist ketanserine. The results confirm the existence of a vasopressor factor in the plasma of hypertensive rats and, in a lower concn., of normotensive rats, which is possibly related to the pathogenesis of essential hypertension. The chromatog. behavior suggests that this factor is different from the parathyroid hypertensive factor described recently.

L9 ANSWER 37 OF 76 CA COPYRIGHT 2001 ACS

AB The activation of cGMP phosphodiesterase (PDE) by the retina rod G-protein, transducin, is a key event in visual signal transduction in vertebrate photoreceptor cells. The interaction between the GTP-bound form of the .alpha. subunit of transducin (.alpha.t*) and the PDE **inhibitory** .gamma.-subunit (PDE.gamma.) is a major component of PDE activation. The central polycationic region of PDE.gamma., PDE.gamma.-24-45, has previously been implicated as one of the sites involved in the .alpha.t*.cntdot.PDE.gamma. interaction. Here, the site on .alpha.t* that interacts with PDE.gamma.-24-45 was detd. using a photocrosslinking approach. The synthetic peptides, Cys(ACM)Tyr-PDE.gamma.-24-45-Cys (where ACM indicates an acetamidomethyl group) and Cys-PDE.gamma.-24-45, were labeled with 4-(N-maleimido)benzophenone at the

C- and N-termini, resp., and then crosslinked to .alpha.t. When the photoprobe was attached to the C-terminus of the peptide, a specific high-yield crosslinked product (80%) was formed between the peptide and .alpha.tGTP.gamma.S [guanosine 5'-O-(thiotriphosphate)]. A lower yield of crosslinking (35%) was seen between the peptide and .alpha.tGDP. The site of crosslinking between Cys(ACM)Tyr-PDE.gamma.-24-45-Cys and .alpha.tGTP.gamma.S was localized to within .alpha.t-306-310 using a variety of chem. and proteolytic cleavages of the crosslinked product and anal. of the fragments with SDS-PAGE and matrix-assisted laser **desorption ionization mass spectrometry**.

L9 ANSWER 38 OF 76 CA COPYRIGHT 2001 ACS
AB A diamido diacid di-Ph fulleroid deriv. [p-[HO2C(CH2)2CONH(CH2)2]C6H4]2CR2 (R2 = C60 residue) was designed specifically to **inhibit** an HIV enzyme. The detailed synthesis and **mass spectrometric** anal. of the water-sol., biol. active fulleroid are described. The compd. was prepd. in three steps from C60 via a suitably substituted diphenyldiazomethane. High-resoln. **mass spectrometric** anal. was possible only under mild matrix-assisted laser **desorption/ionization** Fourier transform **mass spectrometry** conditions. Direct IR or UV laser **desorption** resulted exclusively in observation of C60 **ions**, in either pos. or neg. mode.

L9 ANSWER 39 OF 76 CA COPYRIGHT 2001 ACS
AB The loading values of high levels of anticancer drugs and sugars conjugated to human serum albumin were detd. by matrix-assisted UV laser **desorption/ionization mass spectrometry**. The values were compared with those obtained by UV **spectrometry**, radioactivity labeling or by chem. anal., and were found to be consistent. The matrix-assisted UV laser **desorption /ionization** method has been demonstrated to be a routine and reliable method for obtaining high loading values and therefore was applied to the detn. of the loading of two exptl. drugs, for treating AIDS and septic shock, resp., when conjugated to bovine serum albumin, which could not be routinely detd. by UV **spectrometry** since the chromophores of the drugs and protein overlap.

L9 ANSWER 40 OF 76 CA COPYRIGHT 2001 ACS
AB NAD+-dependent 15-hydroxyprostaglandin dehydrogenase catalyzes the first step in the metab. of prostaglandins which is usually assocd. with physiol. inactivation. A highly purified homogeneous enzyme prepn. from human placenta was used to det. the mol. **mass** and lack of quaternary structure of the enzyme. Furthermore, the kinetics of the purified enzyme were detd. with (5Z,8E,10E,12S)-12-hydroxy-5,8,10-heptadecatrienoic acid (HHT), an equimolar coproduct of thromboxane biosynthesis. Using gel electrophoresis and gel filtration on FPLC, a mol. **mass** of 28 .+-. 1 kDa was estd., indicating that the enzyme consists of one single protein chain. The exact mol. **mass** of the monomer was calcd. by matrix-assisted laser **desorption/ ionization mass spectrometry** as 28,740 .+-. 30 Da. (5Z,8E,10E)-12-oxo-5,8,10-heptadecatrienoic acid (oxo-HT) could be identified as the only product obtained from the enzymic reaction with HHT. Quantification of this metabolic was achieved by gas chromatog./tandem **mass spectrometry**. The calcd. enzyme kinetic consts. for the formation of the metabolic product [Km (HHT) = 9.68 .mu.M, Vi = 12.78 mU/.mu.g] were in agreement with those detd. for NADH formation (Km = 7.65 .mu.M, Vi = 11.79 mU/.mu.g). This demonstrates that HHT shows high affinity for the enzyme which is

comparable to prostaglandin E2 (PGE2). As the product oxo-HT is a potent **inhibitor** of platelet aggregation, dehydrogenation of HHT might represent a biol. activation step.

L9 ANSWER 41 OF 76 CA COPYRIGHT 2001 ACS
AB A very rapid and highly sensitive method using **desorption** chem. **ionization** (DCI)-tandem **mass spectrometry** (MS/MS) with selected reaction monitoring is reported for the simultaneous detn. of imidapril and its active metabolite (M1) in human plasma. Imidapril and M1 in plasma were extd. by a C18 solid-phase extn. cartridge after deproteinization and derivatized with pentafluorobenzyl bromide. One .mu.L of prepd. sample was applied to the DCI filament and analyzed by DCI/MS/MS within a few minutes. The limits of detn. of imidapril and M1 were 0.2 and 0.5 ng/mL in human plasma, resp. The features of this method make it appropriate for use in pharmacokinetic studies with human plasma after oral administration of imidapril.

L9 ANSWER 42 OF 76 CA COPYRIGHT 2001 ACS
AB The interferon antagonist and growth promoter sarcolectin has affinity for neg. charged carbohydrates. Isolation of cellular binding proteins will be a step to elucidate its physiol. significance. Thus, resin-immobilized sarcolectin was employed as affinity ligand for chromatog. fractionation of ext. from human placenta. Elution with 0.1 M NH4OH or with 0.1 M N-acetylneuraminic acid and 1 M NaCl resulted primarily in purifn. of a protein of mol. **mass** of about 12 kDa according to gel electrophoretic anal. under denaturing conditions in the presence or absence of reductive agent and 12,470 Da by laser **desorption** **mass spectrometry**. The native mol. **mass**, assessed by gel filtration, is approx. 28 kDa. No evidence for detectable post-translational modification by glycosylation was provided by treatment with N-glycosidase F or sialidase and subsequent electrophoretic anal. The N-terminal sequence of the major sarcolectin-binding protein is identical to that deduced from the cDNA sequence of a human macrophage migration **inhibitory** factor (MIF), starting from its third amino acid, over the detd. stretch of 22 amino acids. Comparison of the calcd. mol. **mass** of 12,221 of this factor to the exptl. detd. value of 12,470 excludes any extensive modification of the protein. The sarcolectin-binding protein reduces macrophage migration at a concn. of 100 ng/mL in MIF assays. Recombination migration **inhibitory** factor and purified sarcolectin-binding protein reacted equally well with anti-MIF antibody in immunoblot anal. and in assays to block binding to sarcolectin. Binding of biotinylated sarcolectin, too, is nearly identical for the two protein prepns. It is optimal in the range pH 7-9 and is markedly impaired by increasing **ionic** strength. Chem. modification with group-specific reagents revealed that the integrity of carboxyl groups of the sarcolectin-binding protein and of lysine/arginine groups of sarcolectin are primarily important to maintain binding capacity. In addn. to contribute to the understanding of the functional significance of sarcolectin this result provides a convenient procedure to purify a lymphokine.

L9 ANSWER 43 OF 76 CA COPYRIGHT 2001 ACS
AB Human plasma was incubated with tissue kallikrein from porcine pancreas and was dialyzed to obtain a fraction with a mol. **mass** <10 kDa; this was further purified by reverse-phase chromatog. Vasopressor activity in the fractions obtained was tested in the isolated perfused rat

kidney. In one fraction a strong vasopressor action was found, which was blocked by saralasin and by an angiotensin II antibody. Aprotinin **inhibited** the formation of vasopressor substances by tissue kallikrein. The use of u.v.-laser **desorption/ionization mass spectrometry** revealed a mol. **mass** of 1046 Da in the purified active fraction. Apparently, tissue kallikrein forms not only kinins, but also angiotensin II, from human plasma under physiol. conditions.

L9 ANSWER 44 OF 76 CA COPYRIGHT 2001 ACS
AB Study of interaction of the antitumor alkylating drug triethylenethiophosphoramide (thioTEPA) with nucleotides (dGMP and dCMP) suggests highly perspective employment of Cf fission fragment induced **desorption mass spectrometry** (252Cf PDMS) in biochem. pharmacol. Using the 252Cf PDMS the mol. wts. of the unstable, nonvolatile, high-mol. substances of biol. origin and the chem. adducts or complexes with drugs can be used to establish some structural-functional parameters of the above mentioned biomols. and their derivs. in microvolumes of the incubation medium. The resulting data may be used for modeling chemotherapeutic processes of drug-biomol-target type. Using 252Cf PDMS the complexes [dGMP(thioTEPA)n], n = 1, 2, 3 and [dCMP(thioTEPA)n], n = 1, were obtained. Some quant. parameters and stability of these complexes were studied. Binding of dGMP with drug in the presence of dCMP was preferential. The data are compatible with the predictions concerning the mechanism of the antitumor property of the thioTEPA which can be manifested in the impairment structure of DNA of the malignant cells.

L9 ANSWER 45 OF 76 CA COPYRIGHT 2001 ACS
AB The capacity of the vascular enzyme, semicarbazide-sensitive amine oxidase (SSAO), to metabolize methylamine to the potentially toxic product, formaldehyde, was tested using rat aortic homogenates and purified porcine aortic SSAO. Formaldehyde prodn. in incubations of enzyme source with methylamine (1 mM) was detected by HPLC and product was confirmed by **desorption** chem. **ionization mass spectrometry** (DCI-MS). **Inhibitor** studies using the specific SSAO **inhibitor** semicarbazide and the monoamine oxidase **inhibitor** pargyline indicate that SSAO is responsible for metab. of methylamine to formaldehyde. These results suggest the possibility that elevated methylamine found in several pathol. states (such as uremia and diabetes mellitus), or generated from exogenous sources, could result in overprodn. of formaldehyde in tissues with high SSAO activity, esp. blood vessels.

L9 ANSWER 46 OF 76 CA COPYRIGHT 2001 ACS
AB Potassium halide adducts of the form K2X+ (X = F, Cl, Br, and I) **desorbed** from neutral salts by high power, pulsed, IR laser radiation are detected in abundance by Fourier transform-**ion** cyclotron resonance (FT-ICR) **mass spectrometry**. FT-ICR detection of the K2X+ adduct is favored at increased laser power densities (>108 W/cm2) and at trapping potentials below 3 V, independent of X. In contrast, detection of K+ is promoted at laser power densities below 108 W/cm2 or at higher trapping potentials, with a threshold for trapping that is strongly dependent on X. When laser **desorption /ionization** (LDI)/FT-ICR is performed on 1:1 mixts. of KX and org. mols., ejection pulses applied continuously at the cyclotron resonance frequency of K2X+ **inhibit** formation of the cation-attached product, [M + K]+. Conversely, resonance ejection of K+ enhances [M + K]+, apparently by reducing the matrix **ion**

population trapped in the cell. In evaluating higher mol. wt. adducts, only K3F2+ formed in abundance by laser **desorption** of KF is found through double resonance expts. to contribute significantly to formation of [M K]+. Finally, among the potassium halides, KI generates the highest ratio of detected K2X+ to K+ at low trapping potentials and is therefore best suited for cation-transfer reactions in IR LDI/FT-ICR expts. performed at power densities in the 108 W/cm2 range.

L9 ANSWER 47 OF 76 CA COPYRIGHT 2001 ACS
AB Matrix-assisted laser **desorption ionization** **mass** spectroscopy (LDI MS), a novel method for anal. of large mols., has been used for characterization of synthetic peptides and their byproducts. The potential of LDI MS is demonstrated by analyzing crude synthetic peptides representing typical members of newly designed peptides and proteins. In the first case, a fragment condensation reaction yielding a highly hydrophobic six-helix bundle template-assembled synthetic protein (TASP) in monitored. Then, a crude 19-mer peptide designed to adopt an amphiphilic .alpha.-helical structure and its byproducts from SPPS are identified. Finally, anal. of crude hirulog-1, a 20-mer peptide designed as a thrombin **inhibitor**, using C18 reversed phase high performance liq. chromatog. (RP HPLC), capillary electrophoresis (CE) and LDI MS, manifests the potential of the latter method.

L9 ANSWER 48 OF 76 CA COPYRIGHT 2001 ACS
AB GE2270A is a novel antibiotic active against Gram-pos. bacteria and anaerobes. It's structure originates from a peptidic backbone, the amino acids of which have been modified to produce a macrocycle and a side-chain. It contains a heterocyclic chromophoric system, a no. of thiazole amino acids and three unmodified natural amino acids. The structure [relative mol. **mass** (RMM) 1289] was detd. using various spectroscopic techniques, of which fast atom bombardment **mass spectrometry**, gas chromatog./**mass spectrometry**, **desorption** chem. **ionization** **mass spectrometry** and fast atom bombardment tandem **mass spectrometry** played an important role. The **mass spectrometric** approach was applied to the intact mol. and to the various hydrolysis products, including the chromophoric part (RMM 634).

L9 ANSWER 49 OF 76 CA COPYRIGHT 2001 ACS
AB Hirudin from the leech Hirudo medicinalis is a most powerful anticoagulant, and many isoforms have been described. In the present work, the primary structure of two hirudins from the leech Hirudinaria manillensis has been elucidated. The antithrombotic activity is similar to that of H. medicinalis hirudins although the sequence identity is below 60%. Surprisingly, the hirudins were found to be glycosylated at one site. Sugar anal. after methanolysis yielded fucose, galactose, and N-acetylgalactosamine. These results combined with data from matrix-assisted laser **desorption ionization** **mass spectrometry**, plasma **desorption** **mass spectrometry**, capillary zone electrophoresis, and lectin-binding tests indicate that the sequence is Fuc-Gal.beta.1-3GalNAc-(O-threonine). This structure shows an interesting similarity to human blood group H determinants.

L9 ANSWER 50 OF 76 CA COPYRIGHT 2001 ACS
AB The elimination of nonradioactive taxol in bile and urine was investigated in the rat after administration via the caudal vein (10 mg/kg). As in

humans, no metabolites of taxol were detected by HPLC in rat urine, and only 10% of the injected taxol was recovered in urine over a 24-h period. In contrast, 11.5% and 29% of the injected taxol was recovered in rat bile as unchanged taxol and metabolites, resp. Among the nine taxol metabolites detected by HPLC, the side chain at C13, which is required for pharmacol. activity, had been removed in only one minor metabolite, baccatin III. The chem. structures of the two major hydroxylated metabolites were detd. by **mass spectrometry** (fast atom bombardment and **desorption** chem. **ionization**) and 1H-NMR spectroscopy. One was a taxol deriv. hydroxylated on the Ph group at C3' of the side chain at C13, while the other corresponded to a taxol deriv. hydroxylated in the m-position on the benzoate of the side chain at C2. Although these two major taxol metabolites were as active as taxol in preventing cold microtubule disassembly, they were, resp., 9 and 39 times less cytotoxic as taxol on in vitro L1210 leukemia growth. These results show for the first time that there is a significant hepatic metab. of taxol.

L9 ANSWER 51 OF 76 CA COPYRIGHT 2001 ACS

AB In order to explain antitumor activity of alkylating agents targeted to DNA, mild **ionization mass spectrometries** (both field **desorption** and fast-atom-bombardment) were used for direct detection of covalent adducts of N bases (adenine, cytosine, and guanine) with antitumor agent thiotepa. The adduct compn. was dependent on temp. of **ion** sources; by increasing temp., no. of thiotepa mols. participated in adduct formation increased. Thus, adducts of cytosine with 26, 43, or 69 mols. of thiotepa were obsd.

L9 ANSWER 52 OF 76 CA COPYRIGHT 2001 ACS

AB Glucuronidation by liver microsomes of 3'-azido-3'-deoxythymidine (AZT) was characterized in human and various animal species. The glucuronide isolated by HPLC was identified by **mass spectrometry** (fast atom bombardment, **desorption** in chem. **ionization**), and .beta.-glucuronidase hydrolysis. AZT glucuronidation reaction in liver microsomes of human and monkey proceeded similarly with an apparent Vmax of 0.98 nmol/min/mg protein and apparent Km of 13 mM. Oleoyllysophosphatidylcholine activated more than 2-fold the formation of the glucuronide. Human kidney microsomes could also biosynthesize AZT glucuronide, although to a lower extent (six-times less than the corresponding liver). Probenecid, which is administered to AIDS patients, decreased hepatic AZT glucuronidation in vitro (I50 = 1.5 mM), whereas paracetamol did not exert any effect at concns. .ltoreq.21.5 mM. Morphine also **inhibited** the reaction (I50 = 2.7 mM). AZT glucuronidation presented the highest rate in human and in monkey (0.50 nmol/min/mg protein); pig and rat glucuronidated the drug two- and three-times less, resp. In Gunn rat, the specific activity in liver microsomes was similar (0.18 nmol/min/mg protein) to that of the congenic normal strain; this suggests that an isoenzyme other than bilirubin UDP-glucuronsyltransferase catalyzed the reaction. In rats, AZT glucuronidation was stimulated 4-fold by phenobarbital; 3-methylcholanthrene or clofibrate failed to increase this activity. This result was consistent with the bulkiness of the AZT mol. (thickness 6.7 .ANG.), which is a crit. structure factor for glucuronidation of the drug by phenobarbital-induced isoenzymes. Altogether, the results strongly indicate that UDP-glucuronosyltransferase (phenobarbital-inducible forms) is responsible for AZT glucuronidation.

L9 ANSWER 53 OF 76 CA COPYRIGHT 2001 ACS

AB The electrospray **ionization** (ESI) and plasma **desorption** (PD) **mass** spectra of over 20 peptides and proteins, with mol. wts. (Mr) ranging between 1182 and 143,000, were directly compared. Both techniques produced mol. **ions** for the majority of materials studied; however, neither approach proved to be universally applicable. PD failed for a no. of proteins that were successfully analyzed by ESI, including some of very high Mr. On the other hand, ESI failed for proteins that apparently could not acquire a sufficient no. of pos. charges to allow transmission through the quadrupole **mass** filter. A noncovalently bound adduct, RNase S, did not survive either method intact and a simple glycoprotein, RNase B, did not yield the expected mol. **ion** with either approach. The **mass** measurement accuracy of quadrupole ESI is 5- to 10-fold better than obtained with a com. time-of-flight PD **mass spectrometer** . Furthermore, ESI's superior **mass** resoln. (with quadrupole **mass spectrometers**) will prove to be particularly helpful for the characterization of mixts. of closely related materials. Sensitivity was only compared qual. but is highly compd. dependent with both techniques. In favorable cases, ESI spectra can be obtained on low femtomolar quantities of proteins while PD typically requires several hundred femtomoles to high picomoles, depending on a no. of factors including Mr.

L9 ANSWER 54 OF 76 CA COPYRIGHT 2001 ACS

AB The **mass spectrometric** fragmentation patterns of alkylating antitumor derivs. of N-benzoyl-N',N',N'',N''-diethylenetriamide of phosphoric acid (I; R1 = H, R2 = 4-Me, 4-OMe, 4-F, 3-F, 4-Cl, 3-Cl, 4-Br, 4-I, 3-I, 2-I; R1,R2 = 2,5-I, 3,5-I) were detd. by using electron impact and field **desorption ionization** modes. The m/z values for mol. and fragment **ions** are reported and their spectral intensities are related to structures. The field **desorption** spectra showed higher intensities of mol. **ions** than the electron impact spectra.

L9 ANSWER 55 OF 76 CA COPYRIGHT 2001 ACS

AB The **mass spectrometric** fragmentation patterns of 5 alkylating antitumor derivs. of N-phenyl-N',N',N'',N''-diethylenetriamide of phosphoric acid (I; R = H, 4-Me, 4-F, 4-Br, 3-Br) were detd. by using electron impact and field **desorption ionization** modes. The m/z values for mol. and fragment **ions** are reported. The field **desorption** spectra showed higher intensities of mol. **ions**, while electron impact caused a more extensive fragmentation. Structural effects on spectral characteristics are discussed.

L9 ANSWER 56 OF 76 CA COPYRIGHT 2001 ACS

AB UV laser **desorption/ionization** out of an absorbing matrix has been successfully used to generate mol. **ions** of proteins in the **mass** range .ltoreq.120,000 dalton. The actual upper **mass** limit of generated **ions** is most probably set by ineffective **ion** detection rather than the **ion** formation process. Mol. wt. detn. with a time-of-flight **mass spectrometer** is facilitated by intense signals of multiple charged and cluster mol. **ions**. No fragment **ions** were obsd. in the **mass** range >1000 dalton. Cluster **ions** were obsd. up to a **mass** of 200,000 dalton. The accuracy of **mass** detn. so far is better than 0.5%; 20-100 ng of protein were used for prepn., and <1 pg was consumed for a complete **mass** spectrum. Because of the ease of prepn. and the measuring time of just a f ew minutes this technique should become a valuable tool for mol. wt. detn. of biopolymers.

L9 ANSWER 57 OF 76 CA COPYRIGHT 2001 ACS

AB Reactive **ion** etching of InP with CH4/H2 mixts., a promising

process for optoelectronic device fabrication, has been studied to understand the mechanisms of etching and anisotropy. Special attention has been paid to the polymer film that deposits on inert surfaces in the discharge; deposition rates have been used as a monitor of the discharge chem. as well as for process optimization. Surface anal. shows that under etching conditions that maximize the InP etch rate while minimizing polymer deposition, the hydrocarbon coverage on the InP surface equals typical "adventitious" C levels, and the surface is significantly depleted of P. The etch rate here is limited by the flux to the surface of hydrocarbon reactants responsible for In **desorption**. The absence of a significant hydrocarbon film on the vertical-etched surfaces under conditions of 8:1 anisotropy precludes a surface **inhibitor** mechanism of anisotropy, implicating instead energy deposition via **ion** bombardment as the major contributor to the enhanced vertical etch rate. As the feedstock methane fraction is increased, more stoichiometric surfaces are obtained, the polymer deposition rate and the abundance of gas phase hydrocarbon oligomers increases, and ultimately, polymer forms on the InP. Here the InP etch rate is limited by transport through the permeable polymer overlayer. Reactions with polymer-coated chamber walls are important in detg. InP etch and polymer deposition rates, illustrating the need for chamber seasoning to obtain reproducible results. PH3 is identified by **mass spectrometry** as the primary P-contg. volatile product, while the primary In-contg. volatile product remains unidentified.

L9 ANSWER 58 OF 76 CA COPYRIGHT 2001 ACS

AB NaHCO3 has previously been shown to **inhibit** aflatoxin prodn. by A. parasiticus. The abnormal pigmentation of colonies grown in the presence of bicarbonate suggested that intermediates of the aflatoxin biosynthetic pathway were accumulating. A. parasiticus NRRL 2999 cultures grown in the presence of NaHCO3 were extd. with acetone and chloroform. Thin layer chromatograms of these exts. were compared to those of exts. from mutant strains which accumulate norsolorinic acid, averufin, and versicolorin A. Development by 4 sep. solvent systems suggested that averufin and versicolorin A accumulated in the bicarbonate-grown wild type cultures. The identity of these intermediates was confirmed by **desorption** chem. **ionization mass spectrometry**, which showed M+1 peaks of 369 and 339 where M is the mol. wt. of averufin and versicolorin, resp.

L9 ANSWER 59 OF 76 CA COPYRIGHT 2001 ACS

AB The corrosion **inhibitor** tolyltriazole (TTA) has been investigated by combined secondary **ion mass spectrometry** (SIMS) and temp. programmed **desorption mass spectrometry** (TPD). TTA overlayers in the submonolayer to multilayer range are produced by in situ mol. beam exposure of Cu, Ni and Au substrates under UHV conditions. TPD yields information on different binding states and layer thickness. Mol. cluster **ions** as a(2M-2H + Me)-, indicating the formation of TTA mols. in quasipolymeric chains, are emitted from all three substrates. Only for Cu we found a TTA **desorption** peak at high target temps. (580 K), correlated to the emission of characteristic secondary **ions**, mainly (M-H)- and (2M-2H + Cu). It is obviously the corresponding stable TTA monolayer on Cu that is responsible for the strong corrosion protection effect.

L9 ANSWER 60 OF 76 CA COPYRIGHT 2001 ACS

AB Low-intensity continuous-wave band-gap excitation enhances the etch rate of Si by XeF2. It has been proposed that the enhancement mechanism

involves participation of photogenerated charge carriers in the fluorination reaction itself. A new study has been made of this system by mol.-beam **mass spectrometry**. From the results, for both n- and p-type Si the SiF3 free radical is the primary etch product at Ar-**ion** laser powers >40 W/cm2. SiF4 was also obsd., but its formation is independent of light intensity. The data, including measurements of most probable translational energies, are consistent with a photochem. process being responsible for the SiF3 formation. Surface heating, which is min., cannot account for the exptl. results. Since SiF3 is the principal adsorbate on the surface, the etching is probably the result of **desorption** of SiF3 stimulated by a chem. reaction involving two charge carriers. This is distinct from the photodesorption mechanism usually invoked for semiconductor surfaces, which involves single charge capture by a surface adsorbate. Evidence pertaining to participation of charge carriers in other stages of the fluorination reaction (adsorption of XeF2 and diffusion of F-) has also been obtained. Photogenerated charge carriers probably **inhibit** the chemisorption of XeF2. Field-assisted diffusion, which has been invoked as a rate-detg. process in the photoassisted etching of semi-conductors, was not found to be so for this system.

L9 ANSWER 61 OF 76 CA COPYRIGHT 2001 ACS

AB The decompn. of isotopically labeled acetylene and ethylene was studied on Ni(100) using static secondary-**ion mass spectrometry** (SSIMS) and temp. programmed **desorption** (TPD). Both acetylene and ethylene adsorb mol. at 90 K. Only H2 and the parent mol. are found in TPD. There is a strong isotope effect in the mol. ethylene **desorption** and in its decompn. to form vinyl (CH:CH2) species. The vinyl subsequently decomps. to form acetylide (C.tplbond.CH) and there is no isotope effect in the decompn. of the latter. As the coverage of ethylene increases, there is no **inhibition** of initial vinyl formation, but strong **inhibition** of its decompn. For acetylene, there is an isotope effect in its decompn. to form acetylide but, as for ethylene, none in the decompn. of acetylide. The TPD spectra of H2 from surfaces satd. with ethylene and acetylene are very different; there is much more H2 at high temps. for acetylene. This difference, which disappears for low converges, is discussed in terms of C-H bond breaking in two distinct local environments - the first contg. one or more vacant Ni sites and the second contg. only carbon-covered Ni sites and requiring higher activation energy.

L9 ANSWER 62 OF 76 CA COPYRIGHT 2001 ACS

AB MPTP which has been shown to produce a Parkinson-like syndrome in humans and monkeys also causes cell death in cultures of rat hepatocytes. Treatment of cells with MPTP or its metabolite MPP+ (1-methyl-4-phenylpyridinium **ion**), resulted in leakage of lactic acid dehydrogenase and 14C-labeled adenine nucleotides, as well as marked depletion of ATP and glutathione. Deprenyl, a specific **inhibitor** of monoamine oxidase B, the enzyme catalyzing the oxidn. of MPTP into MPP+, blocked the lethal effect of MPTP, but gave no protection from MPP+-induced cell death. The 4'-fluoro and 4'-chloro analogs of MPTP evoked toxicities similar to that of the parent compd., whereas N-butyl-PTP, 4'-amino-MPTP, and 2'-methyl-MPTP were relatively less toxic. N-Acetylamino-MPTP was virtually nontoxic. The cell death produced by these analogs was also assocd. with leakage of [14C]adenine nucleotides, which is an indicator of loss of ATP from cells. All these compds. except

the N-acetylamino analog were converted to corresponding pyridinium metabolites by liver cells when analyzed by HPLC and plasma **desorption mass spectrometry**. MPTP and its analogs also served as substrates for rat liver mitochondrial monoamine oxidase to varying degrees. Toxicity of various analogs, with the noticeable exceptable of 2'-methyl-MPTP, was **inhibited** by deprenyl. Evidently the conversion of MPTP and its analogs to corresponding pyridinium metabolites is essential for the expression of toxicity.

L9 ANSWER 63 OF 76 CA COPYRIGHT 2001 ACS

AB Carnitine inner salt, Me3N+CH2CH(OH)CH2CO2-, and carnitine hydrochloride, Me3N+CH2CH(OH)CH2CO2H Cl-, in the solid state undergo **ion** -beam-induced intermol. Me transfer reactions as shown by Me3N+CH2CH(OH)CH2CO2Me **ions** at m/z 176 in their pos. **ion** spectra. In the case of carnitine HCl, the product **ion** is three times as abundant as the intact cation. For the inner salt however, the product is less than one-tenth as abundant as [M + H]+. In both cases, the reaction can be precluded by dissoln. of the sample, supporting an intermol. mechanism. The neg. **ion** spectra for these compds. contain no [M - CH3]- **ions**, suggesting that simple transmethylation does not occur. Rather it is proposed that the inner salt abstrs. a Me group from the intact carnitine cation to yield [M + CH3]+ and a neutral species, the driving force being a minimization of the total no. of charges **desorbed** into the gas phase. Thermodn. data favor this mechanism as do data for other carnitine salts. The reaction appears to be **inhibited** when one reactant is present in excess. This is the case for carnitine HNO3 and CH3SO3H, which tend to liberate the intact cation since the anions are large and polarizable. It is also the case for small, hard anions like fluoride, which appear to favor release of the inner salt, hence the cation at m/z 162 is of low abundance and the transmethylation product (m/z 176) is absent. The extent of the reaction is also dependent on the methods of prepn. of the sample, and deposition of the salts from soln. greatly reduces the extent of Me transfer. [M - CH3]- is obsd. when glycerol is used as a matrix, possibly due to a matrix-analyte Me transfer reaction.

L9 ANSWER 64 OF 76 CA COPYRIGHT 2001 ACS

AB The thermospray (TSP) **mass** spectra of a no. of diquaternary pyridinium oxime salts, used as reactivators of organophosphate-**inhibited** cholinesterases, were recorded without the addn. of an electrolyte. The TSP **mass** spectra appeared to be strongly dependent on the concn. as well as on the capillary tip temp. of the interface. At low concns., doubly charged cations were the major fragments in most of the recorded TSP **mass** spectra. At concns. well above 0.001M as well as at too high tip temps., more complicated spectra were obtained, probably due to fragmentation and(or) decompn. These latter spectra did correspond with the published data obtained by **desorption ionization** methods of these compds. TSP **mass** anal. without the addn. of an electrolyte appeared to be rather insensitive to the oxime salts. Using full **mass** scanning around 1 .mu.g of material was necessary to produce a TSP **mass** spectrum.

L9 ANSWER 65 OF 76 CA COPYRIGHT 2001 ACS

AB [1,4-14C]Busulfan gave 1 main metabolite in the isolated perfused rat liver during 4-h cyclic perfusion. The cumulative bile excretion contained .apprx.38% of the total radioactivity. About 1% of unchanged [14C]busulfan was excreted in the bile. The metabolite was identified as .gamma.-glutamyl-.beta.-(S-tetrahydrothiophenium)alanylglycine (sulfonium **ion** of glutathione) by 252Cf plasma **desorption** time-of-flight **mass spectrometry**. The formation of the metabolite was drastically decreased when the glutathione-S-

transferase was **inhibited**, which indicates that the major reaction of busulfan with glutathione is enzymic in nature. The sulfonium **ion** was more stable in the perfusate than in the bile at pH 7.4 and 37.degree..

L9 ANSWER 66 OF 76 CA COPYRIGHT 2001 ACS

AB The plasma **desorption mass** spectra of large peptides, dissolved and electrosprayed in solns. contg. glutathione, show increased mol. **ion** signal, redn. of base-line noise and peak widths, and an increase in multiply charged **ions**. The reduced, rather than the oxidized, form of glutathione is responsible for these effects. Some other chem. similar matrices show similar effects while others do not. Several roles for the matrix are suggested including previously reported effects on protein refolding and aggregation in soln., as well as possibilities for lowering the sample/substrate binding energy during **desorption**.

L9 ANSWER 67 OF 76 CA COPYRIGHT 2001 ACS

AB The new synthetic tripeptide PTT.119 p-fluoro-L-phenylalanyl-m-bis-(2-chloroethyl)-amino-L-phenylalanyl-methionine ethylester hydrochloride(I) [83996-50-3], an alkylating agent, is currently undergoing preclin. trials as an antineoplastic agent. The mol. compn., C29H39N4O4SCl2F, was confirmed by **desorption** chem. **ionization mass spectrometry** with accurate **mass** measurement. A high-performance liq. chromatog. technique was developed for the quantification of PTT.119 in cell culture medium and serum. Incubation of 5 .times. 105 mammary tumor cells (MJY-.alpha.)/mL tissue culture medium with 25 .mu.g PTT.119/mL for 60 min (37.degree.) removed 68% of the tripeptide from the medium. This corresponds to an uptake of 51 fmol PTT.119/tumor cell. Cell death, assessed 5 days after treatment, was directly proportional to the time-dependent removal of PTT.119 from the cell culture medium.

L9 ANSWER 68 OF 76 CA COPYRIGHT 2001 ACS

AB The administration of 14C-labeled diethylnitrosamine [55-18-5] to phenobarbital-pretreated mice resulted in the formation of a radiolabeled green pigment in their livers. Green pigment concns. were time- and dose-dependent, max. levels being reached 1-2 h after dosing. There was only a slight decrease in cytochrome P 450 [9035-51-2] levels and accumulation of porphyrins in the liver at this time. Dimethyl- [62-75-9] or dipropylnitrosamine [621-64-7] also caused an accumulation of similar, though not identical, compds. in the liver. The formation of green pigment was induced by pretreatment of mice with phenobarbital or 3-methylcholanthrene and was **inhibited** by the acute administration of pyrazole or EtOH. From the absorption spectra, the green pigment Me esters appeared to be N-alkylporphyrins. Anal. of the diethylnitrosamine-induced green pigment by high-pressure liq. chromatog. showed it to be more polar than the expected N-ethylprotoporphyrin IX, having a retention time similar to that of N-hydroxyethylprotoporphyrin IX [86468-63-5]. **Desorption** chem.-**ionization mass spectrometry** gave a protonated mol. **ion**, m/z 635, compatible with N-hydroxyethylprotoporphyrin IX. The presence of a free hydroxy group was demonstrated by acetylation with [1-14C]Ac2O. No conversion of N-ethylprotoporphyrin IX into N-hydroxyethylprotoporphyrin IX could be demonstrated in vivo or in vitro. Little or no N-ethylprotoporphyrin IX accumulated in the livers of mice given diethylnitrosamine. Thus, N-hydroxyethylprotoporphyrin IX is the primary reaction product between an active metabolite of diethylnitrosamine and hepatic heme.

L9 ANSWER 69 OF 76 CA COPYRIGHT 2001 ACS
AB A combined high-performance liq. chromatog. (HPLC) **mass spectrometric** method in described for the anal. of several antitumor agents. A 252Cf fission fragment induced **desorption mass spectrometer** was used; this was coupled online to a HPLC. The polar effluent (MeOH-H2O) is introduced directly into a rough vacuum stage, where a thin sample of nonvolatile compds. is collected in a vacuum-drying process (<1 cm3 min-1). The interface which spans the difference in operating pressure between the collection site and the **ion** source consists basically of a sample changing disk. Twelve discrete samples are collected consecutively and analyzed, typically one per min. Quant. blood anal. of vinblastine [865-21-4] using the method is described. Homologous compds. were used as the internal stds.

L9 ANSWER 70 OF 76 CA COPYRIGHT 2001 ACS
AB A time-of-flight **desorption mass spectrometer** utilizing 252Cf fission fragment induced **ionization** analyses samples of nonvolatile org. solids nondestructively. Using a 7 .mu.Ci 252-Cf-source and thin samples (0.1-10 .mu.g cm-2) a complete **mass** spectrum (m/z 1-1000) is obtained in approx. 1 min. The **spectrometer** is combined with a high-performance liq. chromatograph via an interfacing disk sampling up to 12 fractions of nonvolatile compds. in the effluent (.simeq. 0.5 cm3/min MeOH-H2O) under rough vacuum conditions (.simeq. 1 mbar) in a vacuum-drying process. This combined liq. chromatog./**mass spectrometry** method has been applied for the quant. anal. of antitumor drugs in human serum.

L9 ANSWER 71 OF 76 CA COPYRIGHT 2001 ACS
AB The beam was extd. from the unpowered electrode of a source operating under typical plasma etching conditions of 50 Pa and 27 MHz. Appearance potential **mass** spectroscopy was used to distinguish **spectrometer** fragmentation products from plasma radicals. Cl2 plasma beam reaction with undoped Si and with oxidized Al occurs only with **ion** bombardment, whereas with clean Al it occurs without **ions**, leading to isotropic (undercut) etching. Surface O depletion and the onset of Al2Cl6 **desorption** were simultaneously monitored during the "initiation" phase of Al etching. Anisotropic Al etching in chlorocarbon plasmas is probably dependent on sidewall etching **inhibition** by chlorocarbon deposits. **Mass** anal. of beams from Cl2 plasmas contg. 20% CCl4, CHCl3, or CH3Cl showed a similar product distribution of CmCln species in all 3 cases and, in the latter 2 cases, almost complete abstraction of H by Cl atoms to form HCl. The HCl neither enhances nor **inhibits** the reaction of Al with Cl2 plasma, nor does it react with clean Al in the absence of **ion** bombardment.

L9 ANSWER 72 OF 76 CA COPYRIGHT 2001 ACS
AB The contents of a bottle, from which a human being was reported to have drunk and which were believed responsible for an organophosphorus poisoning, were submitted for chem. anal. Initial screening by gas chromatog. with P, S, and N specific detectors failed to identify any intact organophosphorus pesticide. **Mass spectrometric** techniques were applied to the identification. Field **ionization**, field **desorption**, chem. **ionization**, exact **mass** measurements at high resoln., and gas chromatog./low resoln. **mass spectrometry** were used to help define the qual. and partial quant. nature of the sample components. Results were consistent with the virtually complete conversion of diazinon (I) [333-41-5] into a mixt. of .gtoreq.26 chem. distinct products or impurities. The most abundant chem. compds. found in the sample included: 2-isopropyl-4-methyl-

6-hydroxypyrimidine [2814-20-2]; 2-isopropyl-4-methyl-6-mercaptopyrimidine [2463-81-2]; 6,6'-dithiobis(2-isopropyl-4-methylpyrimidine) [77738-91-1]; 6,6'-thiobis(2-isopropyl-4-methylpyrimidine) [2463-82-3]; 4-ethoxy-2-isopropyl-6-methylpyrimidine [72799-31-6], 4-thioethoxy-2-isopropyl-6-methylpyrimidine [77738-92-2], triethylphosphorothionate [126-68-1], and triethylphosphorothiolate [1186-09-0]. Also found were several potent acetylcholinesterase **inhibitors**: monothionotetraethylpyrophosphate [645-78-3]; dithionotetraethylpyrophosphate [3689-24-5]; and tetraethylpyrophosphate [107-49-3]. Model decompn. studies verified the formation of the compds. These results were then used to identify compds. in 2 other samples.

L9 ANSWER 73 OF 76 CA COPYRIGHT 2001 ACS

AB Incubation of 14C-labeled C6H6 [71-43-2] or PhOH [108-95-2] with liver microsomes from untreated rats, in the presence of a NADPH-generating system, gave rise to irreversible binding of metabolites to microsomal macromols. For both substrates this binding was **inhibited** >50% by addn. of superoxide dismutase [9054-89-1] to the incubation mixts. The decrease in binding was compensated for by accumulation of 14C-labeled hydroquinone [123-31-9], indicating superoxide-mediated oxidn. of hydroquinone as one step in the activation of C6H6 to metabolites binding to microsomal macromols. Since the binding occurred mainly with protein rather than RNA and was virtually completely prevented by glutathione, suggesting identity of metabolite(s) responsible for binding to protein and glutathione, a conjugate was chem. prepd. from p-benzoquinone and reduced glutathion (GSH) and identified by field **desorption mass spectrometry** (FDMS) as 2-(S-glutathionyl) hydroquinone [76726-99-3]. Microsomal incubations, contg. an NADPH-generating system, with C6H6, PhOH, hydroquinone or p-benzoquinone [106-51-4] in the presence of [3H]glutathione or, alternatively,, with [14C]C6H6 or [14C]PhOH in the presence of unlabeled glutathione, were performed. All of these incubations gave rise to a peak of radioactivity eluting from the high pressure liq. chromatograph (HPLC) at a retention time identical to that of the chem. prepd. 2-(S-glutathionyl)hydroquinone, while microsomal incubation of catechol in the presence of [3H]glutathione led to a conjugate with a very different retention time which was not obsd. after incubation of C6H6 or PhOH. The microsomal metabolites of p-benzoquinone, hydroquinone and phenol thus eluting from the HPLC were further identified as the 2-(S-glutathionyl) hydroquinone by field **desorption mass spectrometry**. The glutathione adduct formed from C6H6 during microsomal activation eluted from HPLC with the same retention time and its **mass** spectrum also contained the mol. **ion** (MH) (m/e 416) of this conjugate as an intense peak, but the fragmentation patterns did not allow definite assignments probably due to the considerably smaller amts. of ultimate reactive metabolites formed from this pre-precursor and thus relatively larger amts. of impurities. thus, rat liver microsomes activate C6H6 via PhOH and hydroquinone to p-benzosemiquinone [3225-29-4] and/or p-benzoquinone as quant. important reactive metabolites.

L9 ANSWER 74 OF 76 CA COPYRIGHT 2001 ACS

AB The neoplasm **inhibitor** 1-(2,4,6-trichlorophenyl)-3,3-dimethyltriazene (I) [50355-74-3] was metabolized in rats to the corresponding substituted 1-O-(triazenylmethyl)glucoronide (II) [72040-50-7]. The urinary metabolite was purified by **ion** exchange chromatog. and gel filtration, and isolated from the enriched fractions by freeze-drying. Cold acid cleavage into the 2,4,6-trichlorobenzenediazonium cation and hydrolysis to glucuronic acid and formaldehyde indicated the presence of an O-glycosidic bond through an

enzymically-introduced hydroxymethyl O. This novel type of glucuronoside structure was established by chem. evidence, and confirmed by NMR and field-**desorption mass spectrometry**. It is conceivable that this metabolite represents a stabilized carrier form of the biol.-active triazene that transports the methylating agent from its site of formation to its ultimate target.

L9 ANSWER 75 OF 76 CA COPYRIGHT 2001 ACS
AB The effect of O on the emission of thermions, secondary **ions**, and gas **ions** of bulk impurites from the surface of heated Pt (1573.degree.) was studied **mass spectrometrically**. The essence of the effect is assocd. with diffusion of the impurities along dislocations in the heated metal from the vol. to the surface, followed by their **desorption** into vacuum in the form of **ions**. This process can be enhanced or **inhibited** in the presence of O.

L9 ANSWER 76 OF 76 CA COPYRIGHT 2001 ACS
AB A review paper is given with an account of catalytic decompn. of simple gases involving reaction with static and flow systems investigated with mol. beam app. Flow methods were used for the study of reaction down to 10-9 torr. In the chem. analysis, free radicals were investigated by **mass spectrometry**. The probability P of the reaction when a mol. strikes a metal surface is represented by P = B exp(-E/RT), with a value of B almost unity for 1st order heterogeneous decompns. In the presence of an **inhibiting** gas, B may be large (e.g. acetylene decomp. on Nb carburized sufficiently to form surface Nb2C with B = 109.3). The results of Kaminsky (cf. Mead: Advances in **Mass Spectrometry**. London: Inst. of Petroleum. 1966. Vol. 3. p. 295) on the kinetics of **desorption** of alkali metal **ions** from W studied by mol. beam and **mass spectrometry** methods were discussed in terms of an image force and an empirical repulsive potential. The frequency factor for **desorption** is comparable with the vibrational frequency of an **ion** perpendicular to the surface. The **desorption** of Na, K, and Rb **ions** from W was studied.

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L9 ANSWER 1 OF 76 CA COPYRIGHT 2001 ACS
ACCESSION NUMBER: 126:184915 CA
TITLE: Biosynthesis and N-glycosylation of human interferon-.gamma.. Asn25 and Asn97 differ markedly in how efficiently they are glycosylated and in their oligosaccharide composition
AUTHOR(S): Sereneva, Timo; Moertz, Ejvind; Tolo, Hannele; Roepstorff, Peter; Julkunen, Ilkka
CORPORATE SOURCE: Department Virology, National Public Health Institute, Helsinki, SF-00300, Finland
SOURCE: Eur. J. Biochem. (1996), 242(2), 191-200
CODEN: EJBCAI; ISSN: 0014-2956
PUBLISHER: Springer
DOCUMENT TYPE: Journal
LANGUAGE: English

L9 ANSWER 2 OF 76 CA COPYRIGHT 2001 ACS
ACCESSION NUMBER: 126:142753 CA
TITLE: Oxidized phosphatidylcholines that modify proteins. Analysis by monoclonal antibody against oxidized low density lipoprotein
AUTHOR(S): Itabe, Hiroyuki; Yamamoto, Hisashi; Suzuki, Minoru;

Kawai, Yuka; Nakagawa, Yasuhito; Suzuki, Akemi; Imanaka, Tsueno; Takano, Tatsuya
CORPORATE SOURCE: Faculty of Pharmaceutical Sciences, Teikyo University, Sagamiko, 199-01, Japan
SOURCE: J. Biol. Chem. (1996), 271(52), 33208-33217
CODEN: JBCHA3; ISSN: 0021-9258
PUBLISHER: American Society for Biochemistry and Molecular Biology
DOCUMENT TYPE: Journal
LANGUAGE: English

L9 ANSWER 3 OF 76 CA COPYRIGHT 2001 ACS
ACCESSION NUMBER: 126:87253 CA
TITLE: Isolation and characterization of an anticoagulant from the salivary glands of the tick, Ornithodoros savignyi (Acari: Argasidae)
AUTHOR(S): Gaspar, A.R.M.D.; Joubert, A.M.; Crause, J.C.; Neitz, A.W.H.
CORPORATE SOURCE: Department Biochemistry, University Pretoria, Pretoria, 0002, S. Afr.
SOURCE: Exp. Appl. Acarol. (1996), 20(10), 583-598
CODEN: EAACEM; ISSN: 0168-8162
PUBLISHER: Chapman & Hall
DOCUMENT TYPE: Journal
LANGUAGE: English

L9 ANSWER 4 OF 76 CA COPYRIGHT 2001 ACS
ACCESSION NUMBER: 125:323343 CA
TITLE: Isolation and characterization of eight myo**inhibiting** peptides from the desert locust, Schistocerca gregaria: new members of the cockroach allatostatin family
AUTHOR(S): Veelaert, Dirk; Devreese, Bart; Schoofs, Liliane; Van Beeumen, Jozef; Vanden Broeck, Jozef; Tobe, Stephen S.; De Loof, Arnold
CORPORATE SOURCE: Zoological Institute, Katholieke Universiteit Leuven, Naamsestraat 59, Louvain, B-3000, Belg.
SOURCE: Mol. Cell. Endocrinol. (1996), 122(2), 183-190
CODEN: MCEND6; ISSN: 0303-7207
DOCUMENT TYPE: Journal
LANGUAGE: English

L9 ANSWER 5 OF 76 CA COPYRIGHT 2001 ACS
ACCESSION NUMBER: 125:293548 CA
TITLE: Investigation of glucose-dependent insulinotropic polypeptide-(1-42) and glucagon-like peptide-1-(7-36) degradation in vitro by dipeptidyl peptidase IV using matrix-assisted laser **desorption/ionization**-time of flight **mass spectrometry**. A novel kinetic approach
AUTHOR(S): Pauly, Robert P.; Rosche, Fred; Wermann, Michael; McIntosh, Christopher H. S.; Pederson, Raymond A.; Demuth, Hans-Ulrich
CORPORATE SOURCE: Dep. Physiology, Univ. British Columbia, Vancouver, BC, V6T 1Z3, Can.
SOURCE: J. Biol. Chem. (1996), 271(38), 23222-23229
CODEN: JBCHA3; ISSN: 0021-9258
DOCUMENT TYPE: Journal
LANGUAGE: English

L9 ANSWER 6 OF 76 CA COPYRIGHT 2001 ACS
ACCESSION NUMBER: 125:268595 CA
TITLE: Characterization of ADP-ribosylation sites on desmin and restoration of desmin intermediate filament

assembly by de-ADP-ribosylation
AUTHOR(S): Zhou, Hao; Huiatt, Ted W.; Robson, Richard M.; Sernett, Suzanne W.; Draves, Donand J.
CORPORATE SOURCE: Dep. Biochem. Biophysics, Iowa State Univ., Ames, IA, 50011, USA
SOURCE: Arch. Biochem. Biophys. (1996), 334(2), 214-222
CODEN: ABBIA4; ISSN: 0003-9861
DOCUMENT TYPE: Journal
LANGUAGE: English

L9 ANSWER 7 OF 76 CA COPYRIGHT 2001 ACS
ACCESSION NUMBER: 125:136842 CA
TITLE: Use of ammonium halides as co-matrixes for matrix-assisted laser **desorption/ionization** studies of oligonucleotides
AUTHOR(S): Cheng, Sau-wan; Chan, T.-W. Dominic
CORPORATE SOURCE: Dep. Chem., Chinese Univ. Kong Kong, Hong Kong
SOURCE: Rapid Commun. Mass Spectrom. (1996), 10(8), 907-910
CODEN: RCMSEF; ISSN: 0951-4198
DOCUMENT TYPE: Journal
LANGUAGE: English

L9 ANSWER 8 OF 76 CA COPYRIGHT 2001 ACS
ACCESSION NUMBER: 125:52204 CA
TITLE: Purification and characterization of a tetrameric .alpha.-macroglobulin proteinase **inhibitor** from the gastropod mollusc Biomphalaria glabrata
AUTHOR(S): Bender, Randall C.; Bayne, Christopher J.
CORPORATE SOURCE: Dep. Zool., Oregon State Univ., Corvallis, OR, 97331-2914, USA
SOURCE: Biochem. J. (1996), 316(3), 893-900
CODEN: BIJOAK; ISSN: 0264-6021
DOCUMENT TYPE: Journal
LANGUAGE: English

L9 ANSWER 9 OF 76 CA COPYRIGHT 2001 ACS
ACCESSION NUMBER: 125:29276 CA
TITLE: Electrospray **mass spectrometry** of biomacromolecular complexes with noncovalent interactions - new analytical perspectives for supramolecular chemistry and molecular recognition processes
AUTHOR(S): Przybylski, Michael; Glocker, Michael O.
CORPORATE SOURCE: Fak. Chemie, Universitaet, Konstanz, D-78434, Germany
SOURCE: Angew. Chem., Int. Ed. Engl. (1996), 35(8), 806-826
CODEN: ACIEAY; ISSN: 0570-0833
DOCUMENT TYPE: Journal; General Review
LANGUAGE: English

L9 ANSWER 10 OF 76 CA COPYRIGHT 2001 ACS
ACCESSION NUMBER: 125:10039 CA
TITLE: Field-induced **ion** chemistry leading to the formation of (M - 2nH)+ and (2M - 2mH)+ **ions** in field **desorption mass spectrometry** of saturated hydrocarbons
AUTHOR(S): Klesper, G.; Rooellgen, F. W.
CORPORATE SOURCE: Inst. Physikalische Theoretische Chemie, Univ. Bonn, Bonn, D-53115, Germany
SOURCE: J. Mass Spectrom. (1996), 31(4), 383-8
CODEN: JMSPFJ; ISSN: 1076-5174
DOCUMENT TYPE: Journal
LANGUAGE: English

L9 ANSWER 11 OF 76 CA COPYRIGHT 2001 ACS
ACCESSION NUMBER: 125:3795 CA

TITLE: Probing Protein/Protein Interactions with **Mass Spectrometry** and Isotopic Labeling: Analysis of the p21/Cdk2 Complex
AUTHOR(S): Kriwacki, Richard W.; Wu, Jiang; Siuzdak, Gary; Wright, Peter E.
CORPORATE SOURCE: Department of Molecular Biology, Scripps Research Institute, La Jolla, CA, 92037, USA
SOURCE: J. Am. Chem. Soc. (1996), 118(22), 5320-5321
CODEN: JACSAT; ISSN: 0002-7863
DOCUMENT TYPE: Journal
LANGUAGE: English

L9 ANSWER 12 OF 76 CA COPYRIGHT 2001 ACS
ACCESSION NUMBER: 124:311543 CA
TITLE: **Mass Spectrometry** of Proteins Directly from Polyacrylamide Gels
AUTHOR(S): Loo, Rachel R. Ogorzalek; Stevenson, Tracy I.; Mitchell, Charles; Loo, Joseph A.; Andrews, Philip C.
CORPORATE SOURCE: Department of Biological Chemistry, University of Michigan, Ann Arbor, MI, 48109-0674, USA
SOURCE: Anal. Chem. (1996), 68(11), 1910-17
CODEN: ANCHAM; ISSN: 0003-2700
DOCUMENT TYPE: Journal
LANGUAGE: English

L9 ANSWER 13 OF 76 CA COPYRIGHT 2001 ACS
ACCESSION NUMBER: 124:254961 CA
TITLE: Purification of commercial Coomassie Brilliant Blue R-250 and characterization of the chromogenic fractions
AUTHOR(S): Kundu, Samar K.; Robey, W. Gerard; Nabors, Priscilla; Lopez, Martin R.; Buko, Alexander
CORPORATE SOURCE: Diagnostics Div., Abbott Lab., North Chicago, IL, 60064, USA
SOURCE: Anal. Biochem. (1996), 235(2), 134-40
CODEN: ANBCA2; ISSN: 0003-2697
DOCUMENT TYPE: Journal
LANGUAGE: English

L9 ANSWER 14 OF 76 CA COPYRIGHT 2001 ACS
ACCESSION NUMBER: 124:229255 CA
TITLE: Rapid Monitoring of Site-Specific Glycosylation Microheterogeneity of Recombinant Human Interferon-.gamma.
AUTHOR(S): Harmon, Bryan J.; Gu, Xuejun; Wang, Daniel I. C.
CORPORATE SOURCE: Biotechnology Process Engineering Center, Massachusetts Institute of Technology, Cambridge, MA, 02139-4308, USA
SOURCE: Anal. Chem. (1996), 68(9), 1465-73
CODEN: ANCHAM; ISSN: 0003-2700
DOCUMENT TYPE: Journal
LANGUAGE: English

L9 ANSWER 15 OF 76 CA COPYRIGHT 2001 ACS
ACCESSION NUMBER: 124:224087 CA
TITLE: **Mass spectrometric** approaches to molecular characterization of protein-nucleic acid interactions
AUTHOR(S): Przybylski, Michael; Kast, Juergen; Glocker, Michael O.; Duerr, Eberhard; Bosshard, Hans R.; Nock, Steffen; Sprinzl, Mathias
CORPORATE SOURCE: Faculty of Chemistry, University of Konstanz, P.O. Box 5560M731, Konstanz, 78434, Germany

SOURCE: Toxicol. Lett. (1995), 82/83(1-6), 567-75
CODEN: TOLED5; ISSN: 0378-4274
DOCUMENT TYPE: Journal
LANGUAGE: English

L9 ANSWER 16 OF 76 CA COPYRIGHT 2001 ACS
ACCESSION NUMBER: 124:203507 CA
TITLE: Molecular weight determination of polymers by matrix assisted laser **desorption ionization** in **mass spectrometry**
AUTHOR(S): Kim, Jin Sung; Yoo, Jong Shin
CORPORATE SOURCE: Mass Spectrometry Group, Korea Basic Science Institute, Taejon, 305-333, S. Korea
SOURCE: Anal. Sci. Technol. (1995), 8(4), 465-8
CODEN: ASCTET; ISSN: 1225-0163
DOCUMENT TYPE: Journal
LANGUAGE: English

L9 ANSWER 17 OF 76 CA COPYRIGHT 2001 ACS
ACCESSION NUMBER: 124:197445 CA
TITLE: Identification of multiple target sites for a glutathione conjugate on glutathione-S-transferase by matrix-assisted laser **desorption/ionization mass spectrometry**
AUTHOR(S): Jespersen, S.; Ploemen, J. H. T. M.; van Bladeren, P. J.; Niessen, W. M.; Tjaden, U. r.; van der Greef, J.
CORPORATE SOURCE: Div. Analytical Chem., Univ. Leiden, Leiden, 2300 RA, Neth.
SOURCE: J. Mass Spectrom. (1996), 31(1), 101-7
CODEN: JMSPFJ; ISSN: 1076-5174
DOCUMENT TYPE: Journal
LANGUAGE: English

L9 ANSWER 18 OF 76 CA COPYRIGHT 2001 ACS
ACCESSION NUMBER: 124:108314 CA
TITLE: Purification, characterization, sequence determination, and **mass spectrometric** analysis of a trypsin **inhibitor** from seeds of the Brazilian tree Dipteryx alata (Leguminosae)
AUTHOR(S): Kalume, Dario E.; Sousa, Marcelo V.; Morhy, Lauro
CORPORATE SOURCE: Dep. Biologia Celular, Univ. de Brasilia, Brasilia, 70910-900, Brazil
SOURCE: J. Protein Chem. (1995), 14(8), 685-93
CODEN: JPCHD2; ISSN: 0277-8033
DOCUMENT TYPE: Journal
LANGUAGE: English

L9 ANSWER 19 OF 76 CA COPYRIGHT 2001 ACS
ACCESSION NUMBER: 124:80370 CA
TITLE: Inactivation of Inosine 5'-Monophosphate Dehydrogenase by the Antiviral Agent 5-Ethynyl-1-.beta.-D-Ribofuranosylimidazole-4-Carboxamide 5'-Monophosphate
AUTHOR(S): Wang, Wen; Papov, Vladimir V.; Minakawa, Noriaki; Matsuda, Akira; Biemann, Klaus; Hedstrom, Lizbeth
CORPORATE SOURCE: Graduate Department of Biochemistry, Brandeis University, Waltham, MA, 02254, USA
SOURCE: Biochemistry (1996), 35(1), 95-101
CODEN: BICHAW; ISSN: 0006-2960
DOCUMENT TYPE: Journal
LANGUAGE: English

L9 ANSWER 20 OF 76 CA COPYRIGHT 2001 ACS
ACCESSION NUMBER: 124:49262 CA

TITLE: Identification of the active-site nucleophile in 6-phospho-.beta.-galactosidase from Staphylococcus aureus by labeling with synthetic **inhibitors**
AUTHOR(S): Staedtler, Pit; Hoenig, Sonja; Frank, Rainer; Withers, Stephen G.; Hengstenberg, Wolfgang
CORPORATE SOURCE: Arbeitsgruppe Physiol. Mikroorganismen, Ruhr-Univ. Bochum, Germany
SOURCE: Eur. J. Biochem. (1995), 232(2), 658-63
CODEN: EJBCAI; ISSN: 0014-2956
DOCUMENT TYPE: Journal
LANGUAGE: English

L9 ANSWER 21 OF 76 CA COPYRIGHT 2001 ACS
ACCESSION NUMBER: 123:334106 CA
TITLE: Revisit of MALDI for small proteins
AUTHOR(S): Zhu, Y. F.; Lee, K. L.; Tang, K.; Allman, S. L.; Taranenko, N. I.; Chen, C. H.
CORPORATE SOURCE: Oak Ridge Natl. Lab., Health Sci. Res. Div., Oak Ridge, TN, 37831-6378, USA
SOURCE: Rapid Commun. Mass Spectrom. (1995), 9(13), 1315-20
CODEN: RCMSEF; ISSN: 0951-4198
DOCUMENT TYPE: Journal
LANGUAGE: English

L9 ANSWER 22 OF 76 CA COPYRIGHT 2001 ACS
ACCESSION NUMBER: 123:279413 CA
TITLE: Purification and characterization of a dynorphin-processing endopeptidase
AUTHOR(S): Berman, Yemiliya L.; Juliano, Luiz; Devi, Lakshmi A.
CORPORATE SOURCE: Med. Cent., New York Univ., New York, NY, 10016, USA
SOURCE: J. Biol. Chem. (1995), 270(40), 23845-50
CODEN: JBCHA3; ISSN: 0021-9258
DOCUMENT TYPE: Journal
LANGUAGE: English

L9 ANSWER 23 OF 76 CA COPYRIGHT 2001 ACS
ACCESSION NUMBER: 123:249813 CA
TITLE: Purification and characterization of an extracellular pectate lyase from an Amycolata sp.
AUTHOR(S): Bruehlmann, Fredi
CORPORATE SOURCE: Inst. Biotechnol., Eidgenoessische Technische Hochschule ETH-Hoenggerberg, Zurich, CH-8093, Switz.
SOURCE: Appl. Environ. Microbiol. (1995), 61(10), 3580-5
CODEN: AEMIDF; ISSN: 0099-2240
DOCUMENT TYPE: Journal
LANGUAGE: English

L9 ANSWER 24 OF 76 CA COPYRIGHT 2001 ACS
ACCESSION NUMBER: 123:51393 CA
TITLE: Ovoglycoprotein-Bonded HPLC Stationary Phases for Chiral Recognition
AUTHOR(S): Haginaka, Jun; Seyama, Chikako; Kanasugi, Naoko
CORPORATE SOURCE: Faculty of Pharmaceutical Sciences, Mukogawa Women's University, Nishinomiya, 663, Japan
SOURCE: Anal. Chem. (1995), 67(15), 2539-47
CODEN: ANCHAM; ISSN: 0003-2700
DOCUMENT TYPE: Journal
LANGUAGE: English

L9 ANSWER 25 OF 76 CA COPYRIGHT 2001 ACS
ACCESSION NUMBER: 122:127215 CA
TITLE: **Mass spectrometric** characterization of a series of adenosylated peptides acting as bisubstrate analogs of protein kinases

AUTHOR(S): Gibson, Bradford W.; Medzihradszky, Denes; Hines, Wade
M.; Auriola, Seppo; Kenyon, George L.
CORPORATE SOURCE: Department Pharmaceutical Chemistry, University California, San Francisco, CA, 94143-0446, USA
SOURCE: J. Am. Soc. Mass Spectrom. (1994), 5(5), 443-51
CODEN: JAMSEF; ISSN: 1044-0305
DOCUMENT TYPE: Journal
LANGUAGE: English

L9 ANSWER 26 OF 76 CA COPYRIGHT 2001 ACS
ACCESSION NUMBER: 122:127051 CA
TITLE: Monitoring protein kinase and phosphatase reactions with matrix-assisted laser **desorption/ionization mass spectrometry** and capillary zone electrophoresis: comparison of the detection efficiency of peptide-phosphopeptide mixtures
AUTHOR(S): Craig, A. Grey; Hoeger, Carl A.; Miller, Charleen L.; Goedken, Tammy; Rivier, Jean E.; Fischer, Wolfgang H.
CORPORATE SOURCE: Clayton Foundation Laboratories for Peptide Biology, Salk Institute, San Diego, CA, 92138-9216, USA
SOURCE: Biol. Mass Spectrom. (1994), 23(8), 519-28
CODEN: BIMSEH; ISSN: 1052-9306
DOCUMENT TYPE: Journal
LANGUAGE: English

L9 ANSWER 27 OF 76 CA COPYRIGHT 2001 ACS
ACCESSION NUMBER: 122:125278 CA
TITLE: **Mass spectrometric** characterization of primary structure, glycosylation pattern and surface topology of protease-interaction of human .alpha.1-protease **inhibitor**
AUTHOR(S): Svoboda, M.; Borchers, C.; Przybylski, M.
CORPORATE SOURCE: Fakultaet Chemie, Universitaet Konstanz, Konstanz, W-7750, Germany
SOURCE: Pept. 1992, Proc. Eur. Pept. Symp., 22nd (1993), Meeting Date 1992, 443-4. Editor(s): Schneider, Conrad H.; Eberle, Alex N. ESCOM: Leiden, Neth.
CODEN: 60LUAN
DOCUMENT TYPE: Conference
LANGUAGE: English

L9 ANSWER 28 OF 76 CA COPYRIGHT 2001 ACS
ACCESSION NUMBER: 122:17861 CA
TITLE: The dissociation kinetics of NO on Rh(111) as studied by temperature programmed static secondary **ion mass spectrometry** and **desorption**
AUTHOR(S): Borg, H. J.; Reijerse, J. F. C.-J. M.; van Santen, R. A.; Niemantsverdriet, J. W.
CORPORATE SOURCE: Schuit Institute Catalysis, Eindhoven University Technology, Eindhoven, 5600 MB, Neth.
SOURCE: J. Chem. Phys. (1994), 101(11), 10052-63
CODEN: JCPSA6; ISSN: 0021-9606
DOCUMENT TYPE: Journal
LANGUAGE: English

L9 ANSWER 29 OF 76 CA COPYRIGHT 2001 ACS
ACCESSION NUMBER: 122:4210 CA
TITLE: Active-site tyrosyl residues are targets in the irreversible **inhibition** of a class Mu glutathione transferase by 2-(S-glutathionyl)-3,5,6-trichloro-1,4-benzoquinone
AUTHOR(S): Ploemen, Jan H. T. M.; Johnson, William W.; Jespersen,

Sonja; Vanderwall, Dana; van Ommen, Ben; van der Greef, Jan; van Bladeren, Peter J.; Armstrong, Richard N.
CORPORATE SOURCE: Dep. Biological Toxicol., TNO Toxicol. Inst., Zeist, 3700, Neth.
SOURCE: J. Biol. Chem. (1994), 269(43), 26890-7
CODEN: JBCHA3; ISSN: 0021-9258
DOCUMENT TYPE: Journal
LANGUAGE: English

L9 ANSWER 30 OF 76 CA COPYRIGHT 2001 ACS
ACCESSION NUMBER: 121:275238 CA
TITLE: Affinity labeling of aryl sulfotransferase IV: identification of a peptide sequence at the binding site for 3'-phosphoadenosine-5'-phosphosulfate
AUTHOR(S): Zheng, Yuqun; Bergold, Alan; Duffel, Michael W.
CORPORATE SOURCE: College Pharm., Univ. Iowa, Iowa City, IA, 52242, USA
SOURCE: J. Biol. Chem. (1994), 269(48), 30313-19
CODEN: JBCHA3; ISSN: 0021-9258
DOCUMENT TYPE: Journal
LANGUAGE: English

L9 ANSWER 31 OF 76 CA COPYRIGHT 2001 ACS
ACCESSION NUMBER: 121:195180 CA
TITLE: Mechanism of interactions between anticancer drug and DNA and its components by means 252-Cf particle **desorption mass spectrometry**
AUTHOR(S): Sukhodub, L. F.; Grebenik, L. I.; Chivanov, V. D.
CORPORATE SOURCE: Inst. Appl. Phys., Sumy, Ukraine
SOURCE: Biofizika (1994), 39(2), 289-93
CODEN: BIOFAI; ISSN: 0006-3029
DOCUMENT TYPE: Journal
LANGUAGE: Russian

L9 ANSWER 32 OF 76 CA COPYRIGHT 2001 ACS
ACCESSION NUMBER: 121:82327 CA
TITLE: On the interaction of 1-propanamine with cation-containing MFI zeolite
AUTHOR(S): Kanazirev, Vladislav I.; Price, Geoffrey L.; Dooley, Kerry M.
CORPORATE SOURCE: Dep. Chem. Eng., Louisiana State Univ., Baton Rouge, LA, 70803, USA
SOURCE: J. Catal. (1994), 148(1), 164-80
CODEN: JCTLA5; ISSN: 0021-9517
DOCUMENT TYPE: Journal
LANGUAGE: English

L9 ANSWER 33 OF 76 CA COPYRIGHT 2001 ACS
ACCESSION NUMBER: 121:52906 CA
TITLE: Phosphorylation of an **inhibitory** subunit of cGMP phosphodiesterase in Rana catesbiana rod photoreceptors. I. Characterization of the phosphorylation
AUTHOR(S): Tsuboi, Seiji; Matsumoto, Hiroyuki; Jackson, Kenneth W.; Tsujimoto, Kazuo; Williams, Tim; Yamazaki, Akio
CORPORATE SOURCE: Sch. Med., Wayne State Univ., Detroit, MI, 48201, USA
SOURCE: J. Biol. Chem. (1994), 269(21), 15016-23
CODEN: JBCHA3; ISSN: 0021-9258
DOCUMENT TYPE: Journal
LANGUAGE: English

L9 ANSWER 34 OF 76 CA COPYRIGHT 2001 ACS
ACCESSION NUMBER: 120:292696 CA
TITLE: Identification of Active-Site Peptides from 3H-Labeled

2-Ethynylnaphthalene-Inactivated P450 2B1 and 2B4 Using Amino Acid Sequencing and **Mass Spectrometry**

AUTHOR(S): Roberts, Elizabeth S.; Hopkins, Nancy Eddy; Zaluzec, Eugene J.; Gage, Douglas A.; Alworth, William L.; Hollenberg, Paul F.

CORPORATE SOURCE: School of Medicine, Wayne State University, Detroit, MI, 48201, USA

SOURCE: Biochemistry (1994), 33(12), 3766-71
CODEN: BICHAW; ISSN: 0006-2960

DOCUMENT TYPE: Journal
LANGUAGE: English

L9 ANSWER 35 OF 76 CA COPYRIGHT 2001 ACS
ACCESSION NUMBER: 120:211984 CA
TITLE: Growing protein-doped sinapic acid crystals for laser **desorption**: an alternative preparation method for difficult samples

AUTHOR(S): Xiang, Fan; Beavis, Ronald C.

CORPORATE SOURCE: Dep. Phys., Memorial Univ. Newfoundland, St. John's, NF, A1B 3X7, Can.

SOURCE: Org. Mass Spectrom. (1993), 28(12), 1424-9
CODEN: ORMSBG; ISSN: 0030-493X

DOCUMENT TYPE: Journal
LANGUAGE: English

L9 ANSWER 36 OF 76 CA COPYRIGHT 2001 ACS
ACCESSION NUMBER: 119:223190 CA
TITLE: Partial purification and characterization of a circulating hypertensive factor in spontaneously hypertensive rats

AUTHOR(S): Schlueter, H.; Kluth, B.; Boerjesson-Stoll, R.; Nordhoff, E.; Zidek, W.

CORPORATE SOURCE: Med. Univ. Poliklin., Muenster, D-48129, Germany

SOURCE: Eur. J. Biochem. (1993), 218(1), 67-73
CODEN: EJBCAI; ISSN: 0014-2956

DOCUMENT TYPE: Journal
LANGUAGE: English

L9 ANSWER 37 OF 76 CA COPYRIGHT 2001 ACS
ACCESSION NUMBER: 119:198395 CA
TITLE: A site on transducin .alpha.-subunit of interaction with the polycationic region of cGMP phosphodiesterase **inhibitory** subunit

AUTHOR(S): Artemyev, Nikolai O.; Mills, John S.; Thornburg, Kelly R.; Knapp, Daniel R.; Schey, Kevin L.; Hamm, Heidi E.

CORPORATE SOURCE: Coll. Med., Univ. Illinois, Chicago, IL, 60680, USA

SOURCE: J. Biol. Chem. (1993), 268(31), 23611-15
CODEN: JBCHA3; ISSN: 0021-9258

DOCUMENT TYPE: Journal
LANGUAGE: English

L9 ANSWER 38 OF 76 CA COPYRIGHT 2001 ACS
ACCESSION NUMBER: 119:159836 CA
TITLE: Synthesis of a fullerene derivative for the **inhibition** of HIV enzymes

AUTHOR(S): Sijbesma, R.; Srdanov, G.; Wudl, F.; Castoro, J. A.; Wilkins, Charles; Friedman, Simon H.; DeCamp, Dianne L.; Kenyon, George L.

CORPORATE SOURCE: Inst. Polym. Organic Solids, Univ. California, Santa Barbara, CA, 93106, USA

SOURCE: J. Am. Chem. Soc. (1993), 115(15), 6510-12
CODEN: JACSAT; ISSN: 0002-7863

DOCUMENT TYPE: Journal
LANGUAGE: English

L9 ANSWER 39 OF 76 CA COPYRIGHT 2001 ACS
ACCESSION NUMBER: 119:125351 CA
TITLE: Determination of the loading values for high levels of drugs and sugars conjugated to proteins by matrix-assisted ultraviolet laser **desorption /ionization mass spectrometry**
AUTHOR(S): Siegel, Marshall M.; Tsou, Hwei Ru; Lin, Baiwei; Hollander, Irwin J.; Wissner, Allan; Karas, Michael; Ingendoh, Arnd; Hillenkamp, Franz
CORPORATE SOURCE: Lederle Lab., Am. Cyanamid Co., Pearl River, NY, 10965, USA
SOURCE: Biol. Mass Spectrom. (1993), 22(7), 369-76
CODEN: BIMSEH; ISSN: 1052-9306
DOCUMENT TYPE: Journal
LANGUAGE: English

L9 ANSWER 40 OF 76 CA COPYRIGHT 2001 ACS
ACCESSION NUMBER: 119:89632 CA
TITLE: **Mass** determination of 15-hydroxyprostaglandin dehydrogenase from human placenta and kinetic studies with (5Z,8E,10E,12S)-12-hydroxy-5,8,10-heptadecatrienoic acid as substrate
AUTHOR(S): Hoehl, Wolfgang; Stahl, Bernd; Mundkowski, Ralf; Hofmann, Ute; Meese, Claus O.; Kuhlmann, Ulrich; Schlegel, Werner
CORPORATE SOURCE: Univ. Frauenklin., Muenster, Germany
SOURCE: Eur. J. Biochem. (1993), 214(1), 67-73
CODEN: EJBCAI; ISSN: 0014-2956
DOCUMENT TYPE: Journal
LANGUAGE: English

L9 ANSWER 41 OF 76 CA COPYRIGHT 2001 ACS
ACCESSION NUMBER: 119:85313 CA
TITLE: Rapid determination of a new angiotensin-converting enzyme **inhibitor**, imidapril, and its active metabolite in human plasma by negative-**ion desorption** chemical **ionization** -tandem **mass spectrometry** (MS/MS)
AUTHOR(S): Horimoto, Shingo; Mabuchi, Masanari; Banno, Kiyoshi; Sato, Tadashi
CORPORATE SOURCE: Anal. Chem. Res. Lab., Tanabe Seiyaku Co., Ltd., Osaka, 532, Japan
SOURCE: Chem. Pharm. Bull. (1993), 41(4), 699-702
CODEN: CPBTAL; ISSN: 0009-2363
DOCUMENT TYPE: Journal
LANGUAGE: English

L9 ANSWER 42 OF 76 CA COPYRIGHT 2001 ACS
ACCESSION NUMBER: 119:26387 CA
TITLE: The major binding protein of the interferon antagonist sarcolectin in human placenta is a macrophage migration **inhibitory** factor
AUTHOR(S): Zeng, Fu Yue; Weiser, Weishui Y.; Kratzin, Hartmut; Stahl, Bernd; Karas, Michael; Gabius, Hans Joachim
CORPORATE SOURCE: Inst. Pharm. Chem., Philipps-Univ., Marburg, D-35037, Germany
SOURCE: Arch. Biochem. Biophys. (1993), 303(1), 74-80
CODEN: ABBIA4; ISSN: 0003-9861

DOCUMENT TYPE: Journal
LANGUAGE: English

L9 ANSWER 43 OF 76 CA COPYRIGHT 2001 ACS
ACCESSION NUMBER: 118:161646 CA
TITLE: Generation of angiotensin II from human plasma by tissue kallikrein
AUTHOR(S): Krivoy, N.; Schlueter, H.; Karas, M.; Zidek, W.
CORPORATE SOURCE: Med. Poliklin., Westfael. Wilhelms-Univ., Muenster, Germany
SOURCE: Clin. Sci. (1992), 83(4), 477-82
CODEN: CSCIAE; ISSN: 0143-5221
DOCUMENT TYPE: Journal
LANGUAGE: English

L9 ANSWER 44 OF 76 CA COPYRIGHT 2001 ACS
ACCESSION NUMBER: 118:32555 CA
TITLE: Study of triethylenethiophosphamide interaction with nucleotides by **mass spectrometry** with **ionization** by fission fragments californium-252
AUTHOR(S): Sukhodub, L. F.; Chivanov, V. D.; Grebenik, L. I.; Bondarenko, P. V.; Zubarev, R. A.; Knysh, A. N.
CORPORATE SOURCE: Dep. Appl. Phys., Inst. Met. Phys., Sumy, Russia
SOURCE: Ukr. Biokhim. Zh. (1992), 64(1), 41-9
CODEN: UBZHD4; ISSN: 0201-8470
DOCUMENT TYPE: Journal
LANGUAGE: Russian

L9 ANSWER 45 OF 76 CA COPYRIGHT 2001 ACS
ACCESSION NUMBER: 117:145007 CA
TITLE: Methylamine metabolism to formaldehyde by vascular semicarbazide-sensitive amine oxidase
AUTHOR(S): Boor, Paul J.; Trent, Margaret B.; Lyles, Geoffrey A.; Tao, Ming; Ansari, G. A. S.
CORPORATE SOURCE: Dep. Pathol., Univ. Texas, Galveston, TX, USA
SOURCE: Toxicology (1992), 73(3), 251-8
CODEN: TXCYAC; ISSN: 0300-483X
DOCUMENT TYPE: Journal
LANGUAGE: English

L9 ANSWER 46 OF 76 CA COPYRIGHT 2001 ACS
ACCESSION NUMBER: 117:103290 CA
TITLE: Potassium halide adducts as reagent **ions** in infrared laser **desorption/ionization** Fourier transform **ion** cyclotron resonance **mass spectrometry**
AUTHOR(S): Hogan, Jeremiah D.; Laude, David A., Jr.
CORPORATE SOURCE: Dep. Chem. Biochem., Univ. Texas, Austin, TX, 78712, USA
SOURCE: J. Am. Soc. Mass Spectrom. (1992), 3(4), 301-10
CODEN: JAMSEF; ISSN: 1044-0305
DOCUMENT TYPE: Journal
LANGUAGE: English

L9 ANSWER 47 OF 76 CA COPYRIGHT 2001 ACS
ACCESSION NUMBER: 116:207119 CA
TITLE: Analysis of synthetic peptides using matrix-assisted laser **desorption ionization** **mass spectrometry**
AUTHOR(S): Steiner, V.; Boernsen, K. O.; Schaer, M.; Gassmann, E.; Hoffstetter-Kuhn, S.; Rink, H.; Mutter, M.
CORPORATE SOURCE: Ciba-Geigy Ltd., Basel, CH-4002, Switz.
SOURCE: Pept. Res. (1992), 5(1), 25-9

CODEN: PEREEO; ISSN: 1040-5704
DOCUMENT TYPE: Journal
LANGUAGE: English

L9 ANSWER 48 OF 76 CA COPYRIGHT 2001 ACS
ACCESSION NUMBER: 116:194872 CA
TITLE: Contribution of **mass spectrometric** techniques to the structure elucidation of antibiotic GE2270A, a novel **inhibitor** of bacterial protein synthesis
AUTHOR(S): Colombo, L.; Tavecchia, P.; Selva, E.; Gallo, G. G.; Zerilli, L. F.
CORPORATE SOURCE: Lepetit Res. Cent., Marion Merrell Dow Res. Inst., Gerenzano, Italy
SOURCE: Org. Mass Spectrom. (1992), 27(3), 219-25
CODEN: ORMSBG; ISSN: 0030-493X
DOCUMENT TYPE: Journal
LANGUAGE: English

L9 ANSWER 49 OF 76 CA COPYRIGHT 2001 ACS
ACCESSION NUMBER: 116:146333 CA
TITLE: Primary structure and function of novel O-glycosylated hirudins from the leech Hirudinaria manillensis
AUTHOR(S): Steiner, Verena; Knecht, Rene; Boernsen, K. Olaf; Gassmann, Ernst; Stone, Stuart R.; Raschdorf, Fritz; Schlaeppi, Jean Marc; Maschler, Reinhard
CORPORATE SOURCE: Ciba-Geigy Ltd., Basel, CH-4002, Switz.
SOURCE: Biochemistry (1992), 31(8), 2294-8
CODEN: BICHAW; ISSN: 0006-2960
DOCUMENT TYPE: Journal
LANGUAGE: English

L9 ANSWER 50 OF 76 CA COPYRIGHT 2001 ACS
ACCESSION NUMBER: 114:94569 CA
TITLE: Taxol metabolism. Isolation and identification of three major metabolites of taxol in rat bile
AUTHOR(S): Monsarrat, Bernard; Mariel, Eric; Cros, Suzie; Gares, Michele; Guenard, Daniel; Gueritte-Voegelein, Francoise; Wright, Michel
CORPORATE SOURCE: Lab. Pharmacol. Toxicol. Fondam., Inst. Chim. Subst. Nat., Toulouse, 31077, Fr.
SOURCE: Drug Metab. Dispos. (1990), 18(6), 895-901
CODEN: DMDSAI; ISSN: 0090-9556
DOCUMENT TYPE: Journal
LANGUAGE: English

L9 ANSWER 51 OF 76 CA COPYRIGHT 2001 ACS
ACCESSION NUMBER: 113:184321 CA
TITLE: Direct detection of nitrogen base-thiotepa adducts by mild **ionization mass spectrometry**
AUTHOR(S): Sukhodub, L. F.; Kosevich, M. V.; Shelkovskii, V. S.; Pyatigorskaya, T. L.; Zhilkova, O. Yu.
CORPORATE SOURCE: Inst. Low Temp. Phys. Eng., Kharkov, USSR
SOURCE: Biofizika (1990), 35(4), 549-51
CODEN: BIOFAI; ISSN: 0006-3029
DOCUMENT TYPE: Journal
LANGUAGE: Russian

L9 ANSWER 52 OF 76 CA COPYRIGHT 2001 ACS
ACCESSION NUMBER: 113:147865 CA
TITLE: Phenobarbital inducible UDP-glucuronosyltransferase is responsible for glucuronidation of

3'-azido-3'-deoxythymidine: characterization of the enzyme in human and rat liver microsomes
AUTHOR(S): Haumont, Marc; Magdalou, Jacques; Lafaurie, Chantal; Ziegler, Jean Marie; Siest, Gerard; Colin, Jean Noel
CORPORATE SOURCE: Cent. Med., Fac. Sci. Pharm. Biol., Nancy, 54000, Fr.
SOURCE: Arch. Biochem. Biophys. (1990), 281(2), 264-70
CODEN: ABBIA4; ISSN: 0003-9861
DOCUMENT TYPE: Journal
LANGUAGE: English

L9 ANSWER 53 OF 76 CA COPYRIGHT 2001 ACS
ACCESSION NUMBER: 113:20353 CA
TITLE: Comparison of electrospray **ionization** and plasma **desorption mass** spectra of peptides and proteins
AUTHOR(S): Loo, J. A.; Edmonds, C. G.; Smith, R. D.; Lacey, M. P.; Keough, T.
CORPORATE SOURCE: Chem. Sci. Dep., Pac. Northwest Lab., Richland, WA, 99352, USA
SOURCE: Biomed. Environ. Mass Spectrom. (1990), 19(5), 286-94
CODEN: BEMSEN; ISSN: 0887-6134
DOCUMENT TYPE: Journal
LANGUAGE: English

L9 ANSWER 54 OF 76 CA COPYRIGHT 2001 ACS
ACCESSION NUMBER: 112:48248 CA
TITLE: **Mass-spectrometric** study of phosphoric acid acyldiethylenetriamides
AUTHOR(S): Sukhodub, L. F.; Kosevich, M. V.; Boldeskul, I. E.; Protsenko, L. D.
CORPORATE SOURCE: Fiz.-Tekh. Inst. Nizk. Temp., Kharkov, USSR
SOURCE: Ukr. Khim. Zh. (Russ. Ed.) (1989), 55(7), 752-7
CODEN: UKZHAU; ISSN: 0041-6045
DOCUMENT TYPE: Journal
LANGUAGE: Russian

L9 ANSWER 55 OF 76 CA COPYRIGHT 2001 ACS
ACCESSION NUMBER: 112:48247 CA
TITLE: **Mass-spectrometric** study of phosphoric acid aryldiethylene triamides
AUTHOR(S): Sukhodub, L. F.; Kosevich, M. V.; Boldeskul, I. E.; Protsenko, L. D.
CORPORATE SOURCE: Fiz.-Tekh. Inst. Nizk. Temp., Kharkov, USSR
SOURCE: Ukr. Khim. Zh. (Russ. Ed.) (1989), 55(6), 642-5
CODEN: UKZHAU; ISSN: 0041-6045
DOCUMENT TYPE: Journal
LANGUAGE: Russian

L9 ANSWER 56 OF 76 CA COPYRIGHT 2001 ACS
ACCESSION NUMBER: 112:18432 CA
TITLE: UV laser matrix **desorption/ ionization mass spectrometry** of proteins in the 100,000 Dalton range
AUTHOR(S): Karas, M.; Bahr, U.; Hillenkamp, F.
CORPORATE SOURCE: Inst. Med. Phys., Univ. Muenster, Muenster, 4400, Fed. Rep. Ger.
SOURCE: Int. J. Mass Spectrom. Ion Processes (1989), 92, 231-42
CODEN: IJMPDN; ISSN: 0168-1176
DOCUMENT TYPE: Journal
LANGUAGE: English

L9 ANSWER 57 OF 76 CA COPYRIGHT 2001 ACS
ACCESSION NUMBER: 111:246005 CA

TITLE: Reactive **ion** etching of indium phosphide using methane/hydrogen mixtures: mechanisms of etching and anisotropy
AUTHOR(S): Hayes, T. R.; Dreisbach, M. A.; Thomas, P. M.; Dautremont-Smith, W. C.; Heimbrook, L. A.
CORPORATE SOURCE: AT and T Bell Lab., Murray Hill, NJ, 07974, USA
SOURCE: J. Vac. Sci. Technol., B (1989), 7(5), 1130-40
CODEN: JVTBD9; ISSN: 0734-211X
DOCUMENT TYPE: Journal
LANGUAGE: English

L9 ANSWER 58 OF 76 CA COPYRIGHT 2001 ACS
ACCESSION NUMBER: 111:213486 CA
TITLE: Aspergillus parasiticus accumulates averufin and versicolorin A in the presence of bicarbonate
AUTHOR(S): El-Nabarawy, Anwaar; Hartman, Thomas; Rosen, Joseph D.; Montville, Thomas J.
CORPORATE SOURCE: Cook Coll., Rutgers, State Univ., New Brunswick, NJ, 08903, USA
SOURCE: J. Food Prot. (1989), 52(7), 493-5
CODEN: JFPRDR; ISSN: 0362-028X
DOCUMENT TYPE: Journal
LANGUAGE: English

L9 ANSWER 59 OF 76 CA COPYRIGHT 2001 ACS
ACCESSION NUMBER: 111:141408 CA
TITLE: Combined SIMS/TPD investigations of ultrahigh vacuum-prepared tolyltriazole overlayers on copper, nickel, and gold
AUTHOR(S): Oertel, M.; Kluesener, P.; Kempken, M.; Benninghoven, A.; Rother, H. J.; Holm, R.
CORPORATE SOURCE: Phys. Inst., Univ. Muenster, Muenster, D-4400, Fed. Rep. Ger.
SOURCE: Appl. Surf. Sci. (1989), 37(2), 135-46
CODEN: ASUSEE; ISSN: 0169-4332
DOCUMENT TYPE: Journal
LANGUAGE: English

L9 ANSWER 60 OF 76 CA COPYRIGHT 2001 ACS
ACCESSION NUMBER: 111:69260 CA
TITLE: Photochemical etching of silicon: the influence of photogenerated charge carriers
AUTHOR(S): Houle, F. A.
CORPORATE SOURCE: Almaden Res. Cent., IBM Res. Div., San Jose, CA, 95120, USA
SOURCE: Phys. Rev. B: Condens. Matter (1989), 39(14), 10120-32
CODEN: PRBMDO; ISSN: 0163-1829
DOCUMENT TYPE: Journal
LANGUAGE: English

L9 ANSWER 61 OF 76 CA COPYRIGHT 2001 ACS
ACCESSION NUMBER: 111:22917 CA
TITLE: Carbon-hydrogen bond cleavage for ethylene and acetylene on nickel(100)
AUTHOR(S): Zhu, X. Y.; Castro, M. E.; Akhter, S.; White, J. M.; Houston, J. E.
CORPORATE SOURCE: Dep. Chem., Univ. Texas, Austin, TX, 78712, USA
SOURCE: Surf. Sci. (1988), 207(1), 1-16
CODEN: SUSCAS; ISSN: 0039-6028
DOCUMENT TYPE: Journal
LANGUAGE: English

L9 ANSWER 62 OF 76 CA COPYRIGHT 2001 ACS
ACCESSION NUMBER: 110:90070 CA

TITLE: MPTP and MPTP analogs induced cell death in cultured rat hepatocytes involving the formation of pyridinium metabolites
AUTHOR(S): Singh, Yogendra; Swanson, Eric; Sokoloski, Edward; Kutty, R. Krishnan; Krishna, Gopal
CORPORATE SOURCE: Lab. Chem. Pharmacol., Natl. Heart, Lung, Blood Inst., Bethesda, MD, 20892, USA
SOURCE: Toxicol. Appl. Pharmacol. (1988), 96(2), 347-59
CODEN: TXAPA9; ISSN: 0041-008X
DOCUMENT TYPE: Journal
LANGUAGE: English

L9 ANSWER 63 OF 76 CA COPYRIGHT 2001 ACS
ACCESSION NUMBER: 110:74644 CA
TITLE: Organic reactions at surfaces: a study of carnitine by secondary **ion mass spectrometry**
AUTHOR(S): Hand, Owen W.; Hsu, Bih Hsiung; Cooks, R. Graham
CORPORATE SOURCE: Dep. Chem., Purdue Univ., West Lafayette, IN, 47907, USA
SOURCE: Org. Mass Spectrom. (1988), 23(1), 16-25
CODEN: ORMSBG; ISSN: 0030-493X
DOCUMENT TYPE: Journal
LANGUAGE: English

L9 ANSWER 64 OF 76 CA COPYRIGHT 2001 ACS
ACCESSION NUMBER: 110:70573 CA
TITLE: Thermospray **mass spectrometry** of diquaternary pyridinium oxime salts
AUTHOR(S): Wils, E. R. J.; Hulst, A. G.
CORPORATE SOURCE: Prins Maurits Lab., TNO, Rijswijk, 2280 AA, Neth.
SOURCE: Biomed. Environ. Mass Spectrom. (1988), 17(3), 155-9
CODEN: BEMSEN; ISSN: 0887-6134
DOCUMENT TYPE: Journal
LANGUAGE: English

L9 ANSWER 65 OF 76 CA COPYRIGHT 2001 ACS
ACCESSION NUMBER: 107:126431 CA
TITLE: Metabolism of 14C-busulfan in isolated perfused rat liver
AUTHOR(S): Hassan, Moustapha; Ehrsson, Hans
CORPORATE SOURCE: Karolinska Pharm., Stockholm, S-10401, Swed.
SOURCE: Eur. J. Drug Metab. Pharmacokinet. (1987), 12(1), 71-6
CODEN: EJDPD2; ISSN: 0398-7639
DOCUMENT TYPE: Journal
LANGUAGE: English

L9 ANSWER 66 OF 76 CA COPYRIGHT 2001 ACS
ACCESSION NUMBER: 104:207672 CA
TITLE: Glutathione as a matrix for plasma **desorption mass spectrometry** of large peptides
AUTHOR(S): Alai, Mehrshid; Demirev, Plamen; Fenselau, Catherine; Cotter, Robert J.
CORPORATE SOURCE: Dep. Pharmacol., Johns Hopkins Univ., Baltimore, MD, 21205, USA
SOURCE: Anal. Chem. (1986), 58(7), 1303-7
CODEN: ANCHAM; ISSN: 0003-2700
DOCUMENT TYPE: Journal
LANGUAGE: English

L9 ANSWER 67 OF 76 CA COPYRIGHT 2001 ACS
ACCESSION NUMBER: 101:222211 CA
TITLE: Analytical and pharmacological studies on a new

antineoplastic tripeptide, PTT.119
AUTHOR(S): Roboz, John; Greaves, John; Yagi, Mary Jane; Holland, James F.; Bekesi, J. George
CORPORATE SOURCE: Dep. Neoplastic Dis., Mount Sinai Sch. Med., New York, NY, 10029, USA
SOURCE: Pharmacology (1985), 30(1), 47-54
CODEN: PHMGBN; ISSN: 0031-7012
DOCUMENT TYPE: Journal
LANGUAGE: English

L9 ANSWER 68 OF 76 CA COPYRIGHT 2001 ACS
ACCESSION NUMBER: 99:48764 CA
TITLE: Formation of N-alkylated protoporphyrin IX in the livers of mice after diethylnitrosamine treatment
AUTHOR(S): White, Ian N. H.; Smith, Andrew G.; Farmer, Peter B.
CORPORATE SOURCE: Toxicol. Unit, MRC, Carshalton/Surrey, SM5 4EF, UK
SOURCE: Biochem. J. (1983), 212(3), 599-608
CODEN: BIJOAK; ISSN: 0306-3275
DOCUMENT TYPE: Journal
LANGUAGE: English

L9 ANSWER 69 OF 76 CA COPYRIGHT 2001 ACS
ACCESSION NUMBER: 98:100671 CA
TITLE: Combined liquid chromatography time-of-flight **mass spectrometry**. An application of californium-252 fission fragment induced **desorption mass spectrometry**
AUTHOR(S): Jungclas, Hartmut; Danigel, Harald; Schmidt, Lothar; Dellbrugge, Jorg
CORPORATE SOURCE: Kernchem. Fachber. Phys. Chem., Philipps-Univ., Marburg, D-3550, Fed. Rep. Ger.
SOURCE: Org. Mass Spectrom. (1982), 17(10), 499-502
CODEN: ORMSBG; ISSN: 0030-493X
DOCUMENT TYPE: Journal
LANGUAGE: English

L9 ANSWER 70 OF 76 CA COPYRIGHT 2001 ACS
ACCESSION NUMBER: 98:100661 CA
TITLE: Liquid chromatography/**mass spectrometry** with californium-252 fission fragment-induced **ionization**
AUTHOR(S): Jungclas, Hartmut; Danigel, Harald; Schmidt, Lothar
CORPORATE SOURCE: Kernchem., Philipps-Univ., Marburg, D-355, Fed. Rep. Ger.
SOURCE: Int. J. Mass Spectrom. Ion Phys. (1983), 46, 197-200
CODEN: IJMIBY; ISSN: 0020-7381
DOCUMENT TYPE: Journal
LANGUAGE: English

L9 ANSWER 71 OF 76 CA COPYRIGHT 2001 ACS
ACCESSION NUMBER: 97:154812 CA
TITLE: Plasma beam studies of silicon and aluminum etching mechanisms
AUTHOR(S): Smith, Donald L.; Saviano, Paul G.
CORPORATE SOURCE: Perkin-Elmer Corp., Norwalk, CT, 06856, USA
SOURCE: J. Vac. Sci. Technol. (1982), 21(3), 768-73
CODEN: JVSTAL; ISSN: 0022-5355
DOCUMENT TYPE: Journal
LANGUAGE: English

L9 ANSWER 72 OF 76 CA COPYRIGHT 2001 ACS
ACCESSION NUMBER: 95:74739 CA
TITLE: The recognition of diazinon, an organophosphorus pesticide, when found in samples in the form of

decomposition products
AUTHOR(S): Sovocool, G. Wayne; Harless, Robert L.; Bradway, Diane
E.; Wright, Lynn H.; Lores, Emile M.; Feige, Louis E.
CORPORATE SOURCE: Health Effects Res. Lab., EPA, Research Triangle Park,
NC, 27711, USA
SOURCE: J. Anal. Toxicol. (1981), 5(2), 73-80
CODEN: JATOD3; ISSN: 0146-4760
DOCUMENT TYPE: Journal
LANGUAGE: English

L9 ANSWER 73 OF 76 CA COPYRIGHT 2001 ACS
ACCESSION NUMBER: 94:115334 CA
TITLE: Multi-step metabolic activation of benzene. Effect of
superoxide dismutase on covalent binding to microsomal
macromolecules, and identification of glutathione conjugates using high pressure liquid chromatography and field **desorption mass spectrometry**
AUTHOR(S): Tunek, A.; Platt, K. L.; Przybylski, M.; Oesch, F.
CORPORATE SOURCE: Inst. Environ. Health, Univ. Lund, Lund, S-223 62, Swed.
SOURCE: Chem.-Biol. Interact. (1980), 33(1), 1-17
CODEN: CBINA8; ISSN: 0009-2797
DOCUMENT TYPE: Journal
LANGUAGE: English

L9 ANSWER 74 OF 76 CA COPYRIGHT 2001 ACS
ACCESSION NUMBER: 92:33653 CA
TITLE: Urinary metabolite of 1-(2,4,6-trichlorophenyl)-3,3-dimethyltriazene with an intact diazoamino structure
AUTHOR(S): Kolar, G. F.; Carubelli, R.
CORPORATE SOURCE: Inst. Toxicol. Chemother., Ger. Cancer Res. Cent., Heidelberg, 6900, Fed. Rep. Ger.
SOURCE: Cancer Lett. (Shannon, Irel.) (1979), 7(4), 209-14
CODEN: CALEDQ; ISSN: 0304-3835
DOCUMENT TYPE: Journal
LANGUAGE: English

L9 ANSWER 75 OF 76 CA COPYRIGHT 2001 ACS
ACCESSION NUMBER: 83:51743 CA
TITLE: Effect of oxygen on the thermal emission of **ions** of impurity particles from a platinum surface
AUTHOR(S): Rekova, L. P.; Mozgin, V. V.; Zvyagintseva, L. N.; Bondarenko, V. N.; Fogel, Ya. M.
CORPORATE SOURCE: Fiz.-Tekh. Inst., Kharkov, USSR
SOURCE: Zh. Tekh. Fiz. (1975), 45(3), 616-23
CODEN: ZTEFA3
DOCUMENT TYPE: Journal
LANGUAGE: Russian

L9 ANSWER 76 OF 76 CA COPYRIGHT 2001 ACS
ACCESSION NUMBER: 66:41033 CA
TITLE: Catalytic reactions on metal surfaces at very low gas pressures
AUTHOR(S): Robertson, Andrew J. B.
CORPORATE SOURCE: King's Coll., Strand/London, Engl.
SOURCE: Vacuum (1966), 16(6), 289-94
CODEN: VACUAV
DOCUMENT TYPE: Journal
LANGUAGE: English

=> log y

COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION
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> s spectromet?

L1      353443 SPECTROMET?

=> s l1 and mass

        532160 MASS
L2      149996 L1 AND MASS

=> s l2 and desor?

         81155 DESOR?
L3       10721 L2 AND DESOR?

=> s l3 and ion?

       1343074 ION?
L4        7151 L3 AND ION?

=> s l4 and inhib?

       1243625 INHIB?
L5         209 L4 AND INHIB?

=> s l5 and substrate-bound(2w)(receptor# or ligand#)

        524271 SUBSTRATE
        281423 BOUND
           514 SUBSTRATE-BOUND
                 (SUBSTRATE(W)BOUND)
        484399 RECEPTOR#
        257893 LIGAND#
             6 SUBSTRATE-BOUND(2W)(RECEPTOR# OR LIGAND#)
L6           0 L5 AND SUBSTRATE-BOUND(2W)(RECEPTOR# OR LIGAND#)

=> s l5 and substrate-bound

        524271 SUBSTRATE
        281423 BOUND
           514 SUBSTRATE-BOUND
                 (SUBSTRATE(W)BOUND)
L7           0 L5 AND SUBSTRATE-BOUND

=> s l5 and retentate(2w)chrom?

          1232 RETENTATE
       1028067 CHROM?
            10 RETENTATE(2W)CHROM?
L8           0 L5 AND RETENTATE(2W)CHROM?

=> s l5 not 1997-2000/py

       2785551 1997-2000/PY
L9          76 L5 NOT 1997-2000/PY

=> d l9 1-76 ab
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L9 ANSWER 1 OF 76 CA COPYRIGHT 2001 ACS

AB The authors studied the kinetics of synthesis of interferon-.gamma. (IFN-.gamma.), N-glycosylation, and its secretion by human CD8+ T lymphocytes stimulated via the T-cell receptor. Highly elevated IFN-.gamma. mRNA levels were found as early as 1 h after stimulation. Maximal IFN-.gamma. protein synthesis was obsd. 2-4 h after induction and appeared to correlate to steady-state IFN-.gamma. mRNA levels. As analyzed by pulse/chase expts., the secretion of IFN-.gamma. from T cells was very rapid, the secretion half-time being approx. 20-25 min. **Inhibition** of N-glycosylation by tunicamycin dramatically reduced the expression of IFN-.gamma., but did not block its secretion. Natural IFN-.gamma. is heterogeneously glycosylated and doubly, singly, and unglycosylated forms exist. Expts. performed in a cell-free translation/glycosylation system with mutated IFN-.gamma. constructs lacking either 1 of the potential glycosylation sites suggested that Asn25 is more efficiently glycosylated than Asn97. Site-specific oligosaccharide anal. of natural IFN-.gamma. by glycosidase treatment followed by matrix-assisted-laser-**desorption-ionization mass spectrometry** revealed considerable variation in the carbohydrate structures, with more than 30 different forms. The glycans at Asn25 consisted of fucosylated, mainly complex-type oligosaccharides, whereas the glycans at Asn97 were more heterogeneous, with hybrid and high-mannose structures. An essential role is emphasized of N-linked glycans in the biol. of IFN-.gamma. and show that there is considerable heterogeneity in the individual sugar chains of this important human cytokine.

L9 ANSWER 2 OF 76 CA COPYRIGHT 2001 ACS

AB Oxidatively modified low d. lipoprotein (OxLDL) is known to be involved in atherogenesis. The authors have previously developed a murine monoclonal antibody, FOH1a/DLH3, which recognized oxidatively modified lipoproteins as well as foam cells in human atherosclerotic lesions (Itabe, H., Takeshima, E., Iwasaki, H., Kimura, J., Yoshida, Y., Imanaka, T., and Takano, T. (1994) J. Biol. Chem. 269, 15274-15279). The antigen of this monoclonal antibody was formed by peroxidn. of phosphatidylcholine (PC), and the antigenic oxidized PC (OxPC) derivs. are thought to form complexes with polypeptides including apolipoproteins. OxLDL was measured by a sensitive sandwich ELISA using the monoclonal antibody and anti-human apolipoprotein B antibody, in which antigenic OxPC competed with OxLDL. When antigenic activities of PC analogs were tested by the competition assay, 1-palmitoyl-2-(9-oxononanoyl) P(9-CHO PC) and the hydroperoxide of egg PC potently **inhibited** the detection of OxLDL. 1-Palmitoyl-2-linoleoyl PC was oxidized with ferrous **ion** and ascorbic acid, and the antigenic products were purified from the OxPC exts. on high pressure liq. chromatog. columns and subsequently analyzed by laser **desorption mass spectrometry**. Mol. wt. detn. and retention times of high pressure liq. chromatog. suggest that one of these products was 9-CHO PC. Other products are thought to be 8-carbon aldehyde, dihydroxy, and ketohydroxy derivs. of PC. When a C-terminal 16-mer synthetic peptide of the 70-kDa peroxisomal membrane protein was simply incubated with 9-CHO PC, it was reactive in a sandwich ELISA using FOH1a/DLH3 and an anti-peptide antiserum. These results suggest that the anti-OxLDL monoclonal antibody FOH1a/DLH3 reacts with several oxidized products of PC including aldehyde derivs. of PC, which covalently modify polypeptides.

L9 ANSWER 3 OF 76 CA COPYRIGHT 2001 ACS

AB An **inhibitor** of activated coagulation factor X (fXa) was isolated from salivary gland exts. prepd. from Ornithodoros savignyi using a two-step procedure, involving reversed-phase high-performance liq. chromatog. (RP-HPLC) and diethylaminoethyl (DEAE) **ion**-exchange

chromatog. From its behavior during DEAE chromatog. it could be deduced that it possesses an acidic pI (.apprx.4.6). Capillary zone electrophoresis (CZE) of the purified **inhibitor** showed it to be homogeneous. The mol. **mass** was detd. as 12 kDa using capillary gel electrophoresis (CGE) and as 7183.4 using laser **desorption** **mass spectrometry** (LDMS). The N-terminal amino acid sequence (residues 1-12) was detd. and found to share a 66% identity with tick anticoagulant peptide (TAP). The O. savignyi peptide is a slow, tight-binding **inhibitor** of fXa (Ki=0.83.+-.0.10 nM). The interaction of the fXa-**inhibitor** was found to be competitive and dependent on **ionic** strength. Preliminary investigations show that the **inhibitor** may be specific for fXa.

L9 ANSWER 4 OF 76 CA COPYRIGHT 2001 ACS

AB Eight myoinhibiting peptides were purified by HPLC from a methanolic ext. of 7000 brains of the desert locust, Schistocerca gregaria. Complete sequences were obtained via a novel, combined approach employing: (1) chem. microsequencing and (2) post-source decay anal. on a reflectron time-of-flight **mass spectrometer** using matrix-assisted laser **desorption/ionization**. Each of the peptides shows C-terminal amino acid sequence similarity to cockroach and cricket allatostatins and to blowfly callatostatins. Therefore, these novel peptides were designated Schistocerca gregaria allatostatins (Scg-ASTs) or schistostatins and their primary structures were detd. to be: Ala-Tyr-Thr-Tyr-Val-Ser-Glu-Tyr-Lys-Arg-Leu-Pro-Val-Tyr-Asn-Phe-Gly-Leu-NH2 (Scg-AST-2), Ala-Thr-Gly-Ala-Ala-Ser-Leu-Tyr-Ser-Phe-Gly-Leu-NH2 (Scg-AST-3), Gly-Pro-Arg-Thr-Tyr-Ser-Phe-Gly-Leu-NH2 (Scg-AST-4), Gly-Arg-Leu-Tyr-Ser-Phe-Gly-Leu-NH2 (Scg-AST-5), Ala-Arg-Pro-Tyr-Ser-Phe-Gly-Leu-NH2 (Scg-AST-6), Ala-Gly-Pro-Ala-Pro-Ser-Arg-Leu-Tyr-Ser-Phe-Gly-Leu-NH2 (Scg-AST-7), Glu-Gly-Arg-Met-Tyr-Ser-Phe-Gly-Leu-NH2 (Scg-AST-8), and Ala-Pro-Ala-Glu-His-Arg-Phe-Ser-Phe-Gly-Leu-NH2 (Scg-AST-10). Synthetic Scg-AST peptides **inhibit** the peristaltic movements of the oviduct of S. gregaria. Although all eight peptides show potent **inhibitory** effects on juvenile hormone (JH) biosynthesis by corpora allata (CA) of the cockroach Diploptera punctata, no allatostatic effects were obsd. on CA of the desert locust (S. gregaria).

L9 ANSWER 5 OF 76 CA COPYRIGHT 2001 ACS

AB The incretins glucose-dependent insulinotropic polypeptide (GIP1-42) and glucagon-like peptide-1-(7-36)-amide (GLP-17-36), hormones that potentiate glucose-induced insulin secretion from the endocrine pancreas, are substrates of the circulating exopeptidase dipeptidyl peptidase IV and are rendered biol. inactive upon cleavage of their N-terminal dipeptides. This study was designed to det. if matrix-assisted laser **desorption/ionization**-time of flight **mass** **spectrometry** is a useful anal. tool to study the hydrolysis of these hormones by dipeptidyl peptidase IV, including kinetic anal. Spectra indicated that serum-incubated peptides were cleaved by this enzyme with only minor secondary degrdn. due to other serum protease activity. Quantification of the **mass spectrometric** signals allowed kinetic consts. for both porcine kidney- and human serum dipeptidyl peptidase IV-catalyzed incretin hydrolysis to be calcd. The binding consts. (Km) of these incretins to purified porcine kidney-derived enzyme were 1.8 and 3.8 .mu.M, whereas the binding consts. obsd. in human serum were 39 and 13 .mu.M for glucose-dependent-insulinotropic polypeptide and glucagon-like peptide-1-(7-36), resp. The large range of Km values found in human serum suggests a heterogeneous pool of enzyme. The close correlation between the reported kinetic consts. and those previously described validates this novel approach to kinetic anal.

L9 ANSWER 6 OF 76 CA COPYRIGHT 2001 ACS

AB Desmin is an intermediate filament protein that can be ADP-ribosylated by arginine-specific mono(ADP-ribosyl)transferase. Stoichiometric modifn. of desmin by the transferase causes **inhibition** of assembly of desmin into 10-nm intermediate filaments (Huang et al., 1993, Biochem. Biophys. Res. Commun. 197, 570-577). In this work, the sites of modifn. that can affect disassembly have been identified. ADP-ribosylated desmin (1.2 mol ADP-ribose/mol desmin) was digested with lysyl endopeptidase followed by trypsin. Two ADP-ribosylated peptides were obtained, sequenced by Edman degrdn., and analyzed by the use of matrix-assisted laser **desorption/ionization mass spectrometry**. Arginines 48 and 68 of desmin's head domain were shown to be sites of modifn., with arginine 48 the major ADP-ribosylation site. ADP-ribosylated desmin (4 mol ADP-ribose/mol desmin) was treated with ADP-ribosylarginine hydrolase. Removal of more than three ADP-ribose groups results in partial restoration of desmin's ability to form intermediate filaments. It is necessary to remove all ADP-ribose groups from desmin to restore its complete ability to form intermediate filaments. The fact that the effect of ADP-ribosylation on the filament-forming properties of desmin is fully reversible suggests that ADP-ribosylation alone is responsible for the changes noted in desmin.

L9 ANSWER 7 OF 76 CA COPYRIGHT 2001 ACS

AB Four ammonium salts, NH4F, NH4Cl, NH4Br, and NH4I, were tested as co-matrixes for the matrix-assisted laser **desorption/ionization** (MALDI) anal. of a no. of DNA homopolymers, including phosphorylated d(T)8, phosphorylated d(A)4, phosphorylated d(C)4 and nonphosphorylated d(G)4, using 2-amino-5-nitropyridine (ANP) matrix. In the present study, all the ammonium halides displayed significant enhancement effects on the signal intensities of the intact mol. **ions** of the DNA homopolymers. Among the halides used, NH4F was found to exhibit the greatest enhancement effects. By comparison with results obtained using the corresponding isomorphous potassium halides as comatrixes, it is postulated that both the cationic and anionic portions of the co-matrix mol. play important roles in the **desorption/ionization** of the oligonucleotides under typical MALDI conditions. It was also demonstrated that the ANP matrix exhibits a strong **inhibitory** effect on the formation of alkali-metal adducts in oligonucleotide anal.

L9 ANSWER 8 OF 76 CA COPYRIGHT 2001 ACS

AB The .alpha.-macroglobulin proteinase **inhibitors** (.alpha.Ms) are a family of proteins with the unique ability to **inhibit** a broad spectrum of proteinases. Whereas monomeric, dimeric, and tetrameric .alpha.Ms have been identified in vertebrates, all invertebrate .alpha.Ms characterized so far have been dimeric. Here, the isolation and characterization of a tetrameric .alpha.M from the tropical planorbid snail, B. glabrata, is reported. The sequence of 18 amino acids at the N-terminus indicated homol. with other .alpha.Ms. A subunit mol. wt. of .apprx.200 kDa was detd. by matrix-assisted laser **desorption/ionization** time-of-flight **mass spectrometry** and SDS-PAGE. The quaternary structure was detd. by sedimentation equil. centrifugation and native pore-limit electrophoresis. Evidence for a thioester was provided by the fact that methylamine treatment prevented the autolytic cleavage of the snail .alpha.M subunit and resulted in the release of 4 mol of thiols per mol of snail .alpha.M. The snail .alpha.M **inhibited** the serine proteinase, trypsin, the cysteine proteinase, bromelain, and the metalloproteinase, thermolysin. The spectrum of proteinases **inhibited**, together with the demonstration of steric protection of the proteinase active site and a slow-to-fast conformational change after reacting with trypsin, all suggested that the **inhibitory** mechanism of the snail .alpha.M is similar to the trap mechanism of human .alpha.2M.

L9 ANSWER 9 OF 76 CA COPYRIGHT 2001 ACS
AB A review with 185 refs. The development of "soft" **ionization** methods in recent years has enabled substantial progress in the **mass spectrometric** characterization of macromols., in particular important biopolymers such as proteins and nucleic acids. In contrast to the still existing limitations for the detn. of mol. wts. by other **ionization** methods such as fast atom bombardment and plasma **desorption**, electrospray **ionization** (ESI) and matrix-assisted laser **desorption** have provided a breakthrough to macromols. larger than 100 kDa. Whereas these methods have been successfully applied to det. the mol. wt. and primary structure of biopolymers, the recently discovered direct characterization by ESI-MS of complexes contg. noncovalent interactions ("noncovalent complexes") opens new perspectives for supramol. chem. and anal. biochem. Unlike other **ionization** methods ESI-MS can be performed in homogeneous soln. and under nearly physiol. conditions of pH, concn., and temp. ESI **mass** spectra of biopolymers, particularly proteins, exhibit series of multiply charged macromol. **ions** with charge states and distributions ("charge structures") characteristic of structural states in soln., which enable a differentiation between native and denatured tertiary structures. In the first part of this article, fundamental principles, the present knowledge about **ion** formation mechanism(s) of ESI-MS, the relations between tertiary structures in soln. and charge structures of macro-**ions** in the gas phase, and exptl. preconditions for the identification of noncovalent complexes are described. The hitherto successful applications to the identification of enzyme-substrate and -**inhibitor** complexes, supramol. protein - and protein-nucleotide complexes, double-stranded polynucleotides, as well as synthetic self-assembled complexes demonstrate broad potential for the direct analyses if specific noncovalent interactions. The present results suggest new applications for the characterization of supramol. structures and mol. recognition processes that previously have not been amenable to **mass spectrometry**; for example, the sequence-specific oligomerization of polypeptides, antigen-antibody complexes, enzyme- and receptor-ligand interactions, and the evaluation of mol. specificity in combinatorial syntheses and self-assembled systems.

L9 ANSWER 10 OF 76 CA COPYRIGHT 2001 ACS
AB The formation of [M - 2H]+.bul. **ions** has been reported in the field **desorption mass spectrometry** of satd. hydrocarbons. These **ions** predominantly have an alkene structure and that a field-induced **ion** chem. in multimol. or condensed layers produce [M - 2nH]+.bul. and [2M - 2mH]+.bul. **ions** with n and m = 1, 2, ..., from satd. hydrocarbons. For the primary reaction of the dehydrogenation chem., a field-induced proton transfer from a mol. **ion** to a neighboring mol. is suggested to produce an [M - H]+ **ion** and an [M - H].bul. radical after elimination of mol. hydrogen, which in secondary reactions form an alkene **ion** or a dimer **ion**. Multiple dehydrogenation occurs by repeating this reaction sequence with other parts of mols. having long alkyl chains. The primary reaction is **inhibited** by the admixt. of mols. with lower **ionization** energies than those of the alkanes.

L9 ANSWER 11 OF 76 CA COPYRIGHT 2001 ACS
AB Matrix-assisted laser **desorption/ionization** (MALDI) **mass spectrometry** combined with proteolytic digestion has been used to probe the soln. structure of a protein/protein complex. We demonstrate that this approach allows ready identification of the exact

sites of proteolytic cleavage both for a free protein in soln. (the cyclin-dependent kinase (Cdk) **inhibitory** domain of p21Waf/Cip/Sdi1 (p21-B)) and for a protein/protein complex (p21-B in complex with Cdk2). Anal. of proteolytic digests of the p21-B/Cdk2 complex, simplified by use of both natural isotopic abundance and 15N-labeled p21-B, reveals a segment of between 22 to 36 amino acids of p21-B that is protected from trypsin cleavage, suggesting that this constitutes the Cdk2 binding site on p21-B. This approach is readily generalized to other protein/protein complexes and may allow rapid access to highly accurate maps of protein/protein interfaces.

L9 ANSWER 12 OF 76 CA COPYRIGHT 2001 ACS
AB The direct combination of thin-layer gel electrophoresis and matrix-assisted laser **desorption/ionization** **mass spectrometry** has been demonstrated with good sensitivity and **mass** accuracy, offering potential advantages in speed and reduced complexity. **Mass** spectra have been obtained from isoelec. focusing, sodium dodecyl sulfate, and native gels with as little as 660 fmol of .alpha.- and .beta.-chain bovine Hb and 1 pmol of horse heart myoglobin loaded. CNBr digests were performed in situ, and the products were probed in-gel. Noncovalent complexes such as multimeric protein systems, enzyme **inhibitor** complexes, and protein-ligand complexes can also be characterized when gel electrophoresis is run under nondenaturing conditions. This approach shows promise for simplifying the interface between gel electrophoresis and **mass** **spectrometry**.

L9 ANSWER 13 OF 76 CA COPYRIGHT 2001 ACS
AB Coomassie Brilliant Blue R-250 (CBB) is a popular and widely used dye for detection of proteins by gel electrophoresis. However, com. available CBBs are complex mixts. of numerous chromogenic compds. that vary from lot to lot, thereby giving an undesirable level of variation in reproducibility, precision, and specificity in staining gels. The authors developed a silica gel column chromatog. method for purifn. of com. CBBs in high yield and standardized each lot to perform equivalently in staining proteins as detd. by SDS-PAGE and quant. scanning densitometry. This is a major improvement in protein purity detns. by quant. scanning densitometry. A TLC method for quality control testing of the purified CBB lots was also developed. Plasma-**desorption** **mass** **spectrometry** was used to identify components of silica gel column fractions. Scanning densitometry was the technol. used to establish performance equivalency between different CBB prepns. The less polar chromogenic compds. are nonblue and/or fluorescent in color, contain mono- or unsulfonated structures, and lack significant protein binding capacity.
The more polar chromogenic compds. are green and blue-green in color, contain tri- and tetrasulfonated moieties, compared to the disulfonated structure of CBB, and bind to protein at least 40 times more effectively than pure CBB. The concns. of these highly polar chromogens differ from lot to lot and act as "**inhibitors**" in protein staining, thereby causing variability in protein staining.

L9 ANSWER 14 OF 76 CA COPYRIGHT 2001 ACS
AB An anal. system is presented for rapid assessment of site-specific microheterogeneity of the two potential N-linked glycosylation sites of recombinant human interferon-.gamma. (IFN-.gamma.) derived from Chinese hamster ovary cell culture. The target protein is first purified from culture supernatant by immunoaffinity chromatog., and the acidic eluent is neutralized via an in-line mixing tee. Online proteolysis is rapidly

performed by an immobilized trypsin cartridge, and reversed-phase chromatog. isolates the two pools of glycopeptides representing the potential glycosylation sites. Following off-line anal. by matrix-assisted laser-**desorption ionization** /time-of-flight (MALDI/TOF) **mass spectrometry**, obsd. **mass** shifts of glycopeptides relative to the known masses of their amino acid portions are correlated to site-specific oligosaccharide structures. Desialylation of glycopeptides by sialidase treatment on the MALDI sample plate allows for quant. estns. of asialoglycan structures by MALDI/TOF. This methodol. permits glycoprotein microheterogeneity to be evaluated in a time frame of .apprx.2 h, utilizing as little as 0.5 .mu.g (25 pmol) of product. Results of monitoring a batch culture are presented as well as anal. of a culture contg. deoxymannojirimycin, an **inhibitor** of glycoprotein processing.

L9 ANSWER 15 OF 76 CA COPYRIGHT 2001 ACS

AB The recent development of 'soft' **ionization-desorption** methods has lead to a breakthrough for the **mass spectrometric** anal. of biomacromols. such as proteins and nucleic acids. In particular, the feasibility of electrospray-**ionization mass spectrometry** (ESI-MS) for the direct characterization of non-covalent supramol. complexes is opening new anal perspectives. Examples hitherto analyzed by ESI-MS include enzyme-substrate and -**inhibitor** complexes, homo- and heterodimers/trimers of leucine zipper polypeptides, and several other DNA- and RNA-binding proteins. Furthermore, the characterization of double-stranded and higher-order oligo- and polynucleotide complexes by neg.-**ion** ESI has been demonstrated. **Ions** specific of non-covalent protein and oligonucleotide complexes can be selectively dissocd. by changing the soln. conditions and by increasing the desolvation potential. These results form the basis for the mol. characterization of protein-nucleotide interactions, thus complementing protein-chem. approaches, and other methods of structure detn.

L9 ANSWER 16 OF 76 CA COPYRIGHT 2001 ACS

AB Matrix assisted laser **desorption ionization** in **mass spectrometry** is a fast and accurate method to det. the mol. wt. of natural and synthetic polymers. Unknown peptides such as elastase **inhibitor** and D-hydantoinase were analyzed using sinapinic acid as matrix and their mol. wts. were compared with the results from protein sequencer and gel filtration chromatog., resp. Synthetic polymers such as polyethyleneglycol, polypropyleneglycol, polydimethylsiloxane, and polystyrene were analyzed using matrixes such as 2,5-dihydroxybenzoic acid, 4-hydroxyazobenzenecarboxylic acid, and 2-nitrophenyl octyl ether. Av. mol. wts. of polystyrene were compared with mol. wts. by gel permeation chromatog.

L9 ANSWER 17 OF 76 CA COPYRIGHT 2001 ACS

AB A **mass spectrometric** method providing qual. site-specific information regarding modification of proteins is described. The method involves comparison of unmodified and modified proteins by matrix-assisted laser **desorption/ionization mass spectrometry** (MALDI MS) peptide mapping in combination with site-specific mutagenesis of possible target amino acids. The approach is demonstrated through the mapping of glutathione-S-transferases (GSH transferases) before and after **inhibition** with the glutathione conjugate 2-(S-glutathionyl)-3,5,6-trichloro-1,4-benzoquinone (GSTCBQ). The results demonstrate the utility of site-specific mutagenesis in combination with MALDI MS peptide mapping. Evidence is presented that three residues in or near the active site, including the hydroxyl groups of Tyr6 and Tyr115 and the sulfhydryl group

spectrometry in the following manner. The protease and inhibitor were incubated together under native conditions and then subjected to sepn. based on size, by use of a spin column (gel permeation chromatog.) and/or a microconcentrator (ultrafiltration). The spin column selectively passed the high mol. mass (Mr) protease and trapped low Mr mols. Alternatively, the microconcentrator passed low Mr mols. and retained the protease. If the inhibitor bound non-covalently to the protease, both the inhibitor and protease passed through the spin column (or were retained by the microconcentrator). Electrospray ionization mass spectrometry was used to assay the spin column eluate (or the microconcentrator **retentate**) and to characterize the amts. of protease and inhibitor based on known stds. An advantage of these techniques is that a mixt. contg. inhibitors can be analyzed in the presence of the protease, and inhibitors with the greatest binding affinity can be identified. Non-covalent binding specificity was demonstrated using spin columns by comparing the binding affinity of inhibitors using several mutants of cytomegalovirus protease. The techniques described are applicable to the rapid screening of compd. libraries for selecting substances which bind non-covalently to a known protein.

L2 ANSWER 7 OF 21 CA COPYRIGHT 2000 ACS
ACCESSION NUMBER: 128:177884 CA
TITLE: Methods for purifying nucleic acids by tangential flow ultrafiltration
INVENTOR(S): Bussey, Lee B.; Adamson, Robert; Atchley, Alan
PATENT ASSIGNEE(S): Megabios Corp., USA
SOURCE: PCT Int. Appl., 40 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9805673	A1	19980212	WO 1997-US13493	19970731
W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TR, TT, UA, UG, UZ, VN, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
US 6011148	A	20000104	US 1996-691090	19960801
AU 9740490	A1	19980225	AU 1997-40490	19970731
AU 717136	B2	20000316		
EP 923592	A1	19990623	EP 1997-938081	19970731
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LV, FI				
JP 2000500028	T2	20000111	JP 1998-508062	19970731
PRIORITY APPLN. INFO.:			US 1996-691090	19960801
			WO 1997-US13493	19970731

AB Methods are provided for producing highly purified compns. of nucleic acids by using tangential flow ultrafiltration in an open-channel, flat-plate, or hollow-fiber device under conditions allowing a gel layer to form. The ultrafiltration membrane is selected based on the size and conformation of the nucleic acid to be purified, and typically will have a mol. wt. cut-off in the range of 1-1000 kDa. Higher yields and purities are obtained when a gel-layer is allowed to form at the membrane surface

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=> s (retentate(10w)chromato?)

          1222 RETENTATE
        538137 CHROMATO?
L1          19 (RETENTATE(10W)CHROMATO?)

=> d l1 1-19 ibib ab
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L1 ANSWER 1 OF 19 CA COPYRIGHT 2000 ACS

ACCESSION NUMBER: 133:225344 CA

TITLE: Bench-scale hot gas separation plant for ceramic membranes testing

AUTHOR(S): Cillero, D.; Otero, J.; Sanchez, J. M.; Ruiz, E.

CORPORATE SOURCE: Centro de Investigaciones Energeticas, Medioambientales y Tecnologicas, Madrid, 28040, Spain

SOURCE: Proc. Int. Tech. Conf. Coal Util. Fuel Syst. (1999), 24th, 527-537
CODEN: PTCSFT

PUBLISHER: Coal & Slurry Technology Association

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The successful development of advanced power generation systems such as Integrated Gasification Combined Cycle (IGCC), Fuel Cells requires that practical methods for removal of gaseous and other contaminants be developed. Among numerous alternatives, membranes supply a method for the removal of contaminant gases. The preferred gaseous sepn. scheme would involve removal of contaminant gases such as H2S, HCl, NH3 and others from the hot, high pressure fuel gas. Thus, the useful fuel gases such as H2, CO, and CH4, would be recovered hot and at high pressure. Application of conventional gas sepg. membrane to such sepn. schemes is impractical. Generally, those membranes consist of org. polymers which cannot be used at the high temps. of IGCC gas mixts. The use of inorg. membranes provides a selective sepn. method of gases at high pressure, high temp., and in corrosive environments where requirements can not be met by polymeric membranes. Microporous ceramic membranes, unlike polymerics membranes, are stable at the high IGCC temps. These membranes also permeate gases such as H2 more readily than contaminants such as H2S and the desired sepn. is obtained. Therefore, with this method non desirable compds. can be removed from the coal gasification gases and a stream rich in hydrogen can be produced. This stream can be used as enriched fuel in gas turbines or in fuel cells. In this context CIEMAT has participated in an ECSC Project in collaboration with T.G.I. S.A. and C.S.I.C.-U.A.M., which aim was to develop and evaluate ceramic membranes for hydrogen sepn. from gasification gases. To evaluate these membranes a pilot scale

facility has been designed and constructed at CIEMAT. This paper describes the main characteristics of a hot gas sepn. facility installed at CIEMAT (Spain) to test ceramic membranes, as well as the performance of the developed membranes. The sepn. module is sufficiently versatile and can be adapted to different membranes with several sizes and various geometries. The feed stream is divided in the sepn. chamber into two fractions: retentate and permeate. Samples of the feed, permeate and **retentate** streams are conditioned and analyzed online by gas **chromatog**. The influence of the operating parameters on the membrane behavior under gasification off-gases conditions (pressure, temp. and gas compn.) can be studied. The performance of the membranes in terms of permeability and selectivity can also be evaluated.

REFERENCE COUNT: 5

REFERENCE(S):

(1) Egan, B; Using Inorganic Membranes to Separate Gases: R & D Status Review 1989, ORNL/TM-11345

(2) Fain, D; Coal Gas Cleanup and Purification with Inorganic Membranes 1992

(3) Fain, D; Proceedings of the Tenth Annual Conference on Fossil Energy Materials CONF-9605167 1996, ORNL/FMP-96/1, CA

(4) Gavalas, G; Hydrogen Separation by Ceramic Membranes in Coal Gasification Final Report 1993, DOE/MC/26365-3423

(5) Lin, C; Gas Separations Using Ceramic Membranes Final Report 1993, DOE/MC/25135-3341

L1 ANSWER 2 OF 19 CA COPYRIGHT 2000 ACS

ACCESSION NUMBER: 133:149766 CA

TITLE: Enteric formulations of proanthocyanidin polymer dietary supplements and methods for preparing same

INVENTOR(S): Sesin, David F.; Jolad, Shivanand D.; San-Laung, Chow; Lee, George J.; Chow, John W. S.; Carlson, Thomas J.

PATENT ASSIGNEE(S): Shaman Pharmaceuticals, Inc., USA

SOURCE: PCT Int. Appl., 56 pp.
CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000047062	A2	20000817	WO 2000-US2687	20000201

W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.: US 1999-243197 19990201
US 1999-364248 19990729

AB The present invention provides for a method for prepg. a proanthocyanidin enriched compn. useful as a dietary supplement. The proanthocyanidin polymer compn. can be synthesized by the method comprising the steps of pptg. Croton ssp latex by adjusting the pH of the latex; removing pptd. residue from the pptd. latex to produce a filtrate; concg. the filtrate to

obtain a retentate; and drying the filtrate, the filtrate being essentially free of anti-foaming agents. A further optional addnl. step includes removing addnl. taspine from the **retentate** by contacting said **retentate** with **chromatog**. media. A proanthocyanidin compn. product made by this process is also described. Dietary supplements contg. a proanthocyanidin polymer enriched compn. as well as dietary supplements contg. a proanthocyanidin polymer enriched compn. and an addnl. herbal agent, e.g., ginger, cinnamon, and peppermint oil are also described.

L1 ANSWER 3 OF 19 CA COPYRIGHT 2000 ACS
ACCESSION NUMBER: 130:92457 CA
TITLE: **Retentate chromatography** and protein chip arrays with applications in biology and medicine
INVENTOR(S): Hutchens, T. William; Yip, Tai-tung
PATENT ASSIGNEE(S): Ciphergen Biosystems, Inc., USA
SOURCE: PCT Int. Appl., 157 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 3
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9859362	A1	19981230	WO 1998-US12908	19980619
W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, GW, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
AU 9884721	A1	19990104	AU 1998-84721	19980619
EP 990258	A1	20000405	EP 1998-935479	19980619
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI				
NO 996243	A	20000217	NO 1999-6243	19991216
PRIORITY APPLN. INFO.:			US 1997-54333	19970620
			US 1997-67484	19971201
			WO 1998-US12908	19980619

AB This invention provides methods of **retentate chromatog**. for resolving analytes in a sample. The methods involve adsorbing the analytes to a substrate under a plurality of different selectivity conditions, and detecting the analytes retained on the substrate by desorption spectrometry. The methods are useful in biol. and medicine, including clin. diagnostics and drug discovery.
REFERENCE COUNT: 5
REFERENCE(S): (1) Afeyan, N; US 5453199 A 1995
(2) Sheiman, M; US 4752562 A 1988 CA
(3) Terrapin Diagnostics Ltd; WO 8903430 A 1989
(4) Vestal, M; US 5498545 A 1996
(5) Zeneca Ltd; GB 2281122 A 1995

L1 ANSWER 4 OF 19 CA COPYRIGHT 2000 ACS
ACCESSION NUMBER: 130:92456 CA
TITLE: **Retentate chromatography** and protein chip arrays with applications in biology and medicine
INVENTOR(S): Hutchens, T. William; Yip, Tai-tung
PATENT ASSIGNEE(S): Ciphergen Biosystems, Inc., USA
SOURCE: PCT Int. Appl., 157 pp.
CODEN: PIXXD2

DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 3
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9859361	A1	19981230	WO 1998-US12907	19980619
W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, GW, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
AU 9883753	A1	19990104	AU 1998-83753	19980619
EP 990257	A1	20000405	EP 1998-934162	19980619
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, FI				

PRIORITY APPLN. INFO.: US 1997-54333 19970620
US 1997-67484 19971201
WO 1998-US12907 19980619

AB This invention provides methods of **retentate chromatog** . for resolving analytes in a sample. The methods involve adsorbing the analytes to a substrate under a plurality of different selectivity conditions, and detecting the analytes retained on the substrate by desorption spectrometry. The methods are useful in biol. and medicine, including clin. diagnostics and drug discovery.

REFERENCE COUNT: 4
REFERENCE(S): (1) Baylor College Medicine; WO 9428418 A 1994
(2) Medical Res Council; WO 9406920 A 1994
(3) Univ Washington; WO 9709068 A 1997
(4) Vestal, M; US 5498545 A 1996

L1 ANSWER 5 OF 19 CA COPYRIGHT 2000 ACS
ACCESSION NUMBER: 130:78445 CA
TITLE: **Retentate chromatography** and protein chip arrays with applications in biology and medicine
INVENTOR(S): Hutchens, T. William; Yip, Tai-tung
PATENT ASSIGNEE(S): Ciphergen Biosystems, Inc., USA
SOURCE: PCT Int. Appl., 157 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 3
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9859360	A1	19981230	WO 1998-US12843	19980619
W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, GW, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
AU 9879816	A1	19990104	AU 1998-79816	19980619
EP 990256	A1	20000405	EP 1998-930421	19980619
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, FI				

PRIORITY APPLN. INFO.: US 1997-54333 19970620

US 1997-67484 19971201
WO 1998-US12843 19980619

AB This invention provides methods of **retentate chromatog** . for resolving analytes in a sample. The methods involve adsorbing the analytes to a substrate under a plurality of different selectively conditions, and detecting the analytes retained on the substrate by desorption spectrometry. The methods are useful in biol. and medicine, including clin. diagnostics and drug discovery.

REFERENCE COUNT: 9
REFERENCE(S): (1) Afeyan, N; US 5453199 A 1995
(2) Baylor College Medicine; WO 9428418 A 1994
(3) Filipi, T; US 4313906 A 1982 CA
(5) Rainin, K; US 4126554 A 1978 CA
(6) Sheiman, M; US 4752562 A 1988 CA
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L1 ANSWER 6 OF 19 CA COPYRIGHT 2000 ACS
ACCESSION NUMBER: 124:7448 CA
TITLE: Water-soluble peptides in Cheddar cheese: isolation and identification of peptides in the diafiltration retentate of the water-soluble fraction
AUTHOR(S): Singh, Tanoj K.; Fox, Patrick F.; Healy, Aine
CORPORATE SOURCE: Dep. Food Chem., National Food Biotechnology Centre, Univ. Coll., Cork, Ire.
SOURCE: J. Dairy Res. (1995), 62(4), 629-40
CODEN: JDRSAN; ISSN: 0022-0299
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The water-sol. ext. of Cheddar cheese was fractionated by diafiltration using 10 kDa cut-off membranes. Peptides were isolated from the diafiltrate **retentate** by **chromatog.** on DEAE-cellulose with a linear NaCl gradient in 50 mM tris-HCl, pH 8.6, and reversed-phase HPLC or electroblotting from urea-PAGE gels. Peptides were identified by detg. N-terminal amino acid sequences and mass spectrometry. Most (45) of the total 51 peptides identified in the diafiltrate retentate originated from .beta.-casein, esp. from a short region in the N-terminal half of the mol. Only six peptides originated from .alpha.s1-casein; peptides could be explained on the basis of known specifities of lactococcal cell envelope proteinases.

L1 ANSWER 7 OF 19 CA COPYRIGHT 2000 ACS
ACCESSION NUMBER: 113:57459 CA
TITLE: Antibiotics and process for producing them
INVENTOR(S): Andriollo, Nunzio; Tolentino, Daniela; Cassani, Giorgio; Borgonovi, Giorgio; Vincenti, Marco; Spera, Silvia; Mirenna, Luigi; Pirali, Giorgio; Confalonieri, Giovanni
PATENT ASSIGNEE(S): Ufficio del Ministro per il Coordinamento delle Iniziative per la Ricerca Scientifica e Tecnologica, Italy
SOURCE: Eur. Pat. Appl., 27 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 346831	A2	19891220	EP 1989-110689	19890613
EP 346831	A3	19910327		
EP 346831	B1	19950222		

R: AT, BE, CH, DE, ES, FR, GB, LI, NL, SE

ZA 8904440	A	19900228	ZA 1989-4440	19890612
IL 90575	A1	19930818	IL 1989-90575	19890612
AU 8936298	A1	19891221	AU 1989-36298	19890613
AU 617820	B2	19911205		
ES 2068849	T3	19950501	ES 1989-110689	19890613
CA 1338170	A1	19960319	CA 1989-602620	19890613
JP 02042095	A2	19900213	JP 1989-152063	19890614
JP 2839032	B2	19981216		
KR 9710955	B1	19970705	KR 1989-8222	19890614
US 5153127	A	19921006	US 1991-800737	19911203
PRIORITY APPLN. INFO.:			IT 1988-20956	19880614
			US 1989-366550	19890614
			US 1990-528894	19900529

AB Antibiotics AB-011a and b are produced by fermn. with Streptomyces NCIB 12629. Thus, a preculture was inoculated into 7 L medium contg. sol. starch 10, glucose 5, and KNO3 2 g/L, plus mineral salts, and incubated at 29.degree. with stirring and aeration, for 96 h. The mycelium from 4 fermns. was extd. with acetone and the ext. was concd. and mixed with the liq. broths. These were treated by ultrafiltration, 1st through a membrane with a cut-off of 20,000 and then with a cut-off of 2000. The **retentate** from the 2nd ultrafiltration was concd. by **chromatog.** on XAD-2. AB-011a was sepd. from AB-011b in the **retentate** by reverse-phase **chromatog.** on silica. Yields of AB-011a and AB-011b were 70 and 20 mg, resp. They have antifungal activity, esp. against phytopathogenic fungi.

L1 ANSWER 8 OF 19 CA COPYRIGHT 2000 ACS
ACCESSION NUMBER: 111:147475 CA
TITLE: Human splenin, its purification, characterization, and therapeutic use
INVENTOR(S): Goldstein, Gideon; Audhya, Tapan
PATENT ASSIGNEE(S): Ortho Pharmaceutical Corp., USA
SOURCE: Eur. Pat. Appl., 14 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 292302	A2	19881123	EP 1988-304579	19880520
EP 292302	A3	19900425		
R: BE, CH, DE, ES, FR, GB, IT, LI, NL				
US 4923964	A	19900508	US 1987-53186	19870522
JP 01010000	A2	19890113	JP 1988-122171	19880520
PRIORITY APPLN. INFO.:			US 1987-53186	19870522

AB Human splenin (hSP) is isolated and purified from human spleen, characterized, and sequenced. HSP is an immunomodulator. Human spleen was extd. in ice-cold 100 mM NH4HCO3 contg. HS(CH2)2OH 50 ng/mL, phenylmethylsulfonyl fluoride 175, and EDTA 375 .mu.g/mL. After centrifugation, the supernatant was filtered through cheese cloth, processed through an Amicon hollow fiber cartridge H10 .times. 100, and ultrafiltered. The **retentate** proteins (mol. wt. 1000-100,000) were **chromatographed** on Sephadex G-75. An immunoreactive fraction (mol. wt. 3,000-8,000) was further processed on Bio-Gel HPHT (hydrorylapatite). HSP was further purified by fast protein liq. chromatog. on Mono Q HR 5/5 and ion-pair reversed-phase chromatog. Yield was 4.5%. The amino acid compn. and sequence (I) of hSP was detd.

L1 ANSWER 9 OF 19 CA COPYRIGHT 2000 ACS
ACCESSION NUMBER: 107:91521 CA

TITLE: Studies on Escherichia coli STb enterotoxin
AUTHOR(S): Talkad, Venugopal D.; Kennedy, Donald J.; Abernathy, Roy; Greenberg, Richard N.
CORPORATE SOURCE: Sch. Med., St. Louis Univ., St. Louis, MO, 62104, USA
SOURCE: Mikrooekol. Ther. (1985), 15, 237-48
CODEN: MITHE4; ISSN: 0720-0536
DOCUMENT TYPE: Journal
LANGUAGE: English

AB E. coli Strain P3 secretes a heat-stable enterotoxin STb which induces intestinal fluid secretion in 4 to 8 wk old weaned pigs but not in suckling mice. There is no significant difference in the toxin prodn. between E. coli strain P4 and an E. coli K12 strain hosting a recombinant plasmid contg. the STb gene (DH5-pCHL6). Enterotoxin activity was retained by a 10,000-mol.-wt. (MW) cut off membrane filter. When a 30-75% ammonium sulfate fraction of 10,000 MW cut off **retentate** was **chromatographed** on Sephadex G-200, STb activity was eluted with and immediately after the void vol. Electrophoresis of anion exchange HPLC pooled fractions on polyacrylamide gels showed that these fractions did not migrate into the 3.5% gel. HPLC pooled fractions showed a pos. reaction to endotoxins by a Limulus lysate assay and to carbohydrates by phenol-sulfuric acid. STb may exist either as a high mol. wt. aggregate or is assocd. with macromol. components present in the cell free media. STb dissocn. from endotoxins was attempted by detergents and mild acid hydrolysis. Enterotoxin activity was unaffected when E. coli strain P3 cell free filtrate was treated with 0.1% CHAPS, a zwitterionic deriv. of cholic acid, 3-[(3-cholamidopropyl) dimethylammonio]-1-propane-sulfonate, Lubrol, and Triton X-100. However, when 0.1% CHAPS treated cell filtrate was chromatographed on Sephacryl S-300, most of the enterotoxin activity was eluted with and immediately after the void vol. Hydrolysis of cell free filtrate with 1% acetic acid at 100.degree. for one hour released STb activity into a sol. (acid hydrolyzed supernatant) and a non-sol. (acid hydrolzyed pellet) component. The STb activity was not destroyed under these harsh conditions. The mol. wt. of the material contg. STb activity present in the acid hydrolyzed supernatant was <150,000 daltons and contained carbohydrates. STb activity present in the acid hydrolyzed pellet did not contain carbohydrate and its mol. wt. appeared to be >50,000 daltons. These findings suggest that mild acid hydrolysis of a cell free filtrate partially dissocs. STb from endotoxins.

L1 ANSWER 10 OF 19 CA COPYRIGHT 2000 ACS
ACCESSION NUMBER: 106:139150 CA
TITLE: Separation characterization of ultrafiltration membranes
AUTHOR(S): Traegaardh, Gun; Oelund, Karin
CORPORATE SOURCE: Div. Food Eng., Univ. Lund, Alnarp, S-23053, Swed.
SOURCE: Membr. Membr. Processes, [Proc. Eur.-Jpn. Congr. Membr. Membr. Processes] (1986), Meeting Date 1984, 209-14. Editor(s): Drioli, Enrico; Nakagaki, Masayuki. Plenum: New York, N. Y.
CODEN: 55OAAY
DOCUMENT TYPE: Conference
LANGUAGE: English

AB A method for characterizing ultrafiltration membranes is based on the anal. of retentate and permeate from membrane filtration expts. The anal. methods used are gel permeation chromatog. and laser light scattering measurements. The distribution of mol. wts. in permeate and **retentate** obtained by **chromatog**. enables the calcn. of the retention of different mol. wts. The light scattering measurements complete the mol. wt. distribution results by giving the size of the particles calcd. from diffusion coeffs. by the Stoke-Einstein equation. A test soln. of 0.5% dextran [9004-54-0] with an av. mol. wt. of 10,000 was

used.

L1 ANSWER 11 OF 19 CA COPYRIGHT 2000 ACS
ACCESSION NUMBER: 105:207603 CA
TITLE: Heat-stable sarcosine oxidase N
INVENTOR(S): Suzuki, Masaru
PATENT ASSIGNEE(S): Noda Institute for Scientific Research, Japan
SOURCE: Ger. Offen., 29 pp.
CODEN: GWXXBX
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 3600563	A1	19860717	DE 1986-3600563	19860110
DE 3600563	C2	19870723		
JP 61162174	A2	19860722	JP 1985-1989	19850111
JP 01034035	B4	19890717		
US 4740864	A	19880426	US 1985-809864	19851217
PRIORITY APPLN. INFO.:			JP 1985-1989	19850111

AB Heat-stable sarcosine oxidase N is produced by fermn. with Bacillus FERM BP-671. Thus, a preculture was added to a prodn. medium contg. 0.8% sarcosine, 2% polypeptone, 8% yeast ext., mineral salts, and phosphate buffer and incubated at 30.degree. for 18 h with stirring and aeration. The cells were recovered and 110 g were lysed with lysozyme. The lysate was heated at 50.degree. to denature proteins, protamine sulfate was added, and the mixt. was filtered. The filtrate was treated by chromatog. on QAE-Sephadex A-50 and Toyopearl 650C and ultrafiltration. The **retentate** was **chromatographed** on Sephadex G-150, subjected again to ultrafiltration, and freeze-dried to yield 90.9 mg powder with an activity of 30.1 units/mg. It maintained 98% activity after 10 min at 55.degree. and 75% activity after 10 min at 60.degree..

L1 ANSWER 12 OF 19 CA COPYRIGHT 2000 ACS
ACCESSION NUMBER: 103:5041 CA
TITLE: KUD-PC protein and its therapeutic use
INVENTOR(S): Umezawa, Iwao; Komiyama, Kanki
PATENT ASSIGNEE(S): Kitasato Institute, Japan
SOURCE: Fr. Demande, 25 pp.
CODEN: FRXXBL
DOCUMENT TYPE: Patent
LANGUAGE: French
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
FR 2548686	A1	19850111	FR 1983-11405	19830708
FR 2548686	B1	19871204		
CA 1209941	A1	19860819	CA 1983-430996	19830622
PRIORITY APPLN. INFO.:			FR 1983-11405	19830708

AB Protein KUD-PC [88984-61-6] is produced by fermn. with Streptomyces pseudovulgolae. Thus, a preculture was inoculated into 130 L of a pH 7 medium contg. glucose 2, dry yeast 0.3, peptone 0.5, beef ext. 0.5, CaCO3 0.3, and NaCl 0.5% and incubated at 28.degree. for 72 h with stirring and aeration. The medium was filtered and made 90% satd. with (NH4)2SO4. The ppt. was dialyzed and KUD-PC was purified from the **retentate** by **chromatog.** on DEAE-cellulose, pptn. with (NH4)2SO4, **chromatog.** on Biogel P-30 eluting with H2O, and concn. of the eluate by ultrafiltration to yield 120 mg crystals. KUD-PC had no antibacterial activity, but when combined with sporamycin [61642-43-1],

protected mice infected with Ehrlich ascites carcinoma cells.

L1 ANSWER 13 OF 19 CA COPYRIGHT 2000 ACS
ACCESSION NUMBER: 99:211161 CA
TITLE: Antibiotic U-64,864
INVENTOR(S): Dolak, Lester A.; Reusser, Fritz; Castle, Thomas M.; Hannon, Betty R.; Laborde, Alice L.; Marschke, Charles K.
PATENT ASSIGNEE(S): Upjohn Co. , USA
SOURCE: U.S., 12 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 4404190	A	19830913	US 1982-341437	19820122

AB Antibiotic U-64,864 [87913-27-7] is produced by fermn. with Streptomyces braegensis NRRL 12567. Thus, a preculture was inoculated into a pH 7.2 medium contg. molasses 10, cornstarch 25, dextrin 5, yeast 2, Kay soy 13, corn steep liquor 8, KH2PO4 3 g, lard oil 0.5 mL/L, and mineral salts soln. and incubated at 28.degree. for 5 days with stirring and aeration. Nine liters of broth were filtered and the filtrate was chromatographed on XAD-2 resin. The 10% acetone eluate was concd., dild. with H2O, and concd. by ultrafiltration. The **retentate** was purified by **chromatog**. on silica gel and XAD-2 resin to yield 166 mg U-64,864. U-64,864 inhibits gram-pos. bacteria.

L1 ANSWER 14 OF 19 CA COPYRIGHT 2000 ACS
ACCESSION NUMBER: 98:177513 CA
TITLE: Acid polysaccharide CH-1 with physiological activity
PATENT ASSIGNEE(S): Kitasato Institute, Japan
SOURCE: Belg., 16 pp.
CODEN: BEXXAL
DOCUMENT TYPE: Patent
LANGUAGE: French
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
BE 894925	A1	19830301	BE 1982-209407	19821105
JP 58096025	A2	19830607	JP 1981-192899	19811202
HU 29048	O	19840130	HU 1982-3481	19821029
HU 188599	B	19860428		
GB 2111070	A1	19830629	GB 1982-31217	19821101
GB 2111070	B2	19850515		
NL 8204323	A	19830701	NL 1982-4323	19821108
DE 3241990	A1	19830616	DE 1982-3241990	19821112
DE 3241990	C2	19850307		
US 4533548	A	19850806	US 1982-441630	19821115
CH 654013	A	19860131	CH 1982-6762	19821119
FR 2517204	A1	19830603	FR 1982-20073	19821130
FR 2517204	B1	19850315		
AT 8204367	A	19851015	AT 1982-4367	19821201
AT 380488	B	19860526		

PRIORITY APPLN. INFO.: JP 1981-192899 19811202

AB Polysaccharide CH-1 is produced from Chlorella pyrenoidosa. Thus, dry powd. C. pyrenoidosa was extd. with hot water for 1 h. The ext. was centrifuged and the supernatant was made 40% in MeOH, cooled to 5.degree.,

and centrifuged. The ppt. was dialyzed against deionized H2O and the **retentate** was **chromatographed** over DEAE-Sephadex and Sephadex G-25. The yield of white powder was 200 mg from 1 kg Chlorella cells. CH-1 induced interferon formation and inhibited virus infection and tumor growth in lab. animals.

L1 ANSWER 15 OF 19 CA COPYRIGHT 2000 ACS
ACCESSION NUMBER: 97:196831 CA
TITLE: .alpha.-Amylase inhibitor from a streptomycete
PATENT ASSIGNEE(S): Hoechst A.-G. , Fed. Rep. Ger.
SOURCE: Israeli, 24 pp.
CODEN: ISXXAQ
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
IL 54506	A1	19820430	IL 1978-54506	19780413

AB A peptide .alpha.-amylase inhibitor is produced by fermn. with Streptomyces tendae. Thus, S. tendae ATCC 31210 was inoculated into a pH 8.3 medium contg. starch 4, corn steep liquor 0.4, glucose 1, (NH4)2HPO4 0.8, soy flour 0.4, and peptone 1% and shaken at 30.degree. for 3 days. Ten L of culture filtrate was dried, defatted, and redissolved in H2O. The supernatant resulting from addn. of MeOH 60% vol. was evapd., concd., and dialyzed against H2O. The .alpha.-amylase inhibitor was purified from the **retentate** by (NH4)2SO4 pptn. and **chromatog.** on Sephadex G-50. The yield was 60 mg white powder with 2520 units of .alpha.-amylase inhibitor activity/mg. It is suitable for oral administration to control hyperglycemia.

L1 ANSWER 16 OF 19 CA COPYRIGHT 2000 ACS
ACCESSION NUMBER: 93:3211 CA
TITLE: A new approach to the analysis of ganglioside molecular species
AUTHOR(S): Nagai, Yoshitaka; Iwamori, Masao
CORPORATE SOURCE: Dep. Biochem., Tokyo Metrop. Inst. Gerontol., Tokyo, 173, Japan
SOURCE: Adv. Exp. Med. Biol. (1980), 125(Struct. Funct. Gangliosides), 13-21
CODEN: AEMBAP; ISSN: 0065-2598
DOCUMENT TYPE: Journal
LANGUAGE: English

AB An improved process for the purifn. and characterization of gangliosides was developed. Tissue Me2CO powders are extd. with CHCl3-MeOH. The exts. are applied to a DEAE-Sephadex column and eluted with 10 vols. MeOH contg. 0.2N NaOAc. The acidic lipids obtained are hydrolyzed with 0.5N NaOH in MeOH, and the soln. is neutralized and dried. The residue is dissolved in H2O and dialyzed. The **retentate** is dried and the residue dissolved in CHCl3-MeOH for **chromatog.** on silica gel. The column is eluted with 95:5 and 85:15 CHCl3-MeOH to elute sulfatides and then with 1:1 to elute gangliosides. They are applied to a DEAE-Sepharose column, eluted with a gradient of NH4OAc in MeOH, and sepd. to individual gangliosides on a column of Iatrobeads.

L1 ANSWER 17 OF 19 CA COPYRIGHT 2000 ACS
ACCESSION NUMBER: 90:114796 CA
TITLE: Novel method for determining protein binding of theophylline

AUTHOR(S): Mulhall, D. W.; Simons, Keith J.; Simons, F. Estelle R.
CORPORATE SOURCE: Fac. Pharm., Univ. Manitoba, Winnipeg, Manitoba, Can.
SOURCE: J. Pharm. Sci. (1979), 68(1), 129-31
CODEN: JPMSAE; ISSN: 0022-3549
DOCUMENT TYPE: Journal
LANGUAGE: English

AB A method for the detn. of the binding of theophylline (I) [58-55-9] to blood serum proteins is described using an ultrafiltration method that eliminates centrifugation. An immersible cartridge was used consisting of a noncellulose ultrafiltration membrane sealed to a plastic core. The protein-free filtrate was obtained by applying a vacuum to the core. Samples of filtrate and **retentate** were removed and assayed for I using high-performance liq. **chromatog**. The percentage binding of I at concns. of 1.5 .mu.g/mL was similar to that detd. by the ultrafiltration cone method. The method is convenient and rapid. It also has potential application to the binding of other drugs and xenobiotics.

L1 ANSWER 18 OF 19 CA COPYRIGHT 2000 ACS
ACCESSION NUMBER: 90:52970 CA
TITLE: Purification and characterization of mouse brain Thy-1.2 differentiation alloantigen
AUTHOR(S): McClain, L. D.; Tomana, M.; Acton, R. T.
CORPORATE SOURCE: Diabetes Res. Train. Cent., Univ. Alabama, Birmingham, Ala., USA
SOURCE: Brain Res. (1978), 159(1), 161-71
CODEN: BRREAP; ISSN: 0006-8993
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Subcellular fractionation of C57Bl/6J mouse brains produced a crude synaptosome prepn. which contained virtually all of the Thy-1.2 antigenic activity of the isotonic whole brain homogenate. The Thy-1.2 was solubilized from the synaptosomes, following delipidation with Me2CO, by deoxycholate extn. A glycoprotein fraction rich in Thy-1.2 was isolated from the bulk of the detergent-sol. material by lectin affinity chromatog. Fractionation of the lectin **retentate** by gel filtration **chromatog**. produced a single peak of Thy-1.2 activity purified >2000-fold over the original homogenate. Na dodecyl sulfate polyacrylamide gel electrophoresis of this material revealed a single band which corresponded to an apparent mol. wt. of 24,000. Amino acid compn. data indicated that the protein portion of the mol. is similar to Thy-1.1 from mouse lymphoblastoid cells. Carbohydrate anal. revealed a qual. similarity between mouse brain Thy-1.2 and Thy-1.1 from rat brain. Structural differences which could account for the Thy-1.1 and Thy-1.2 antigenic distinctions are apparently too subtle to be detected by compositional anal.

L1 ANSWER 19 OF 19 CA COPYRIGHT 2000 ACS
ACCESSION NUMBER: 88:94812 CA
TITLE: Amylase inhibitor
INVENTOR(S): Woeber, Guenter; Woeber, Guenter
PATENT ASSIGNEE(S): Ger.
SOURCE: Ger. Offen., 7 pp.
CODEN: GWXXBX
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE

DE 2628757	A1	19771229	DE 1976-2628757	19760626

AB An .alpha.-amylase [9000-90-2] inhibitor, specific for pancreas and saliva .alpha.-amylase, is extd. from bean (Phaseolus vulgaris) seeds or whole plants, using dil. mineral acids. The inhibitor can be used in the therapy of obesity, diabetes, and atherosclerosis, due to its inhibition of the digestion of dietary starch [9005-25-8]. Thus, the inhibitor was extd. from dried bean seeds with 0.01M H2SO4. The ext. was heated to 70.degree. and centrifuged at 10,000 g. The supernatant was dialyzed, and the 40-65% (NH4)2SO4 fraction of the **retentate** was dialyzed and further purified by mol. sieve **chromatog**. on Acrylex P 100.